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PEABODY JOURNAL OF EDUCATION

Edited and Published by

THE FACULTY OF GEORGE PEABODY COLLEGE FOR TEACHERS

NASHVILLE, TENNESSEE

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PEABODY JOURNAL OF EDUCATION

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THE ORIENTATION OF CLASSROOMS OF SCHOOL BUILDINGS

FLETCHER B. DRESSLAR and R. H. SOUTHERLAND
George Peabody College for Teachers

Through many years of contact with Boards of Education and architects concerning the planning and construction of school buildings, we have found that frequently an otherwise well-planned building, or at least an acceptable one, has been rendered more or less objectionable because faced toward the wrong direction. Two of the many cardinal principles to be observed in school planning are: (1) Determine the nature and the extent of the ground upon which the school building is to be placed; (2) determine toward what point of the compass the main entrance of the building is to be faced. No one can intelligently plan a building without this information.

The study reported in this paper provides definite data on perhaps the most important problem regarding the direction in which a schoolroom should face—the control of the amount of direct sunlight which will enter the room. The investigation endeavors to bring before school people and those architects who deal intelligently with school buildings reasons for orientation, and to take this matter out of the realm of mere opinion and base it on facts arrived at by experiment.

The study which we have made determines, for a school located in latitude 36° 10′ north, regarding each direction in which the room may face: (1) The relative total number of hours of interference by direct sunlight on pupils' desk tops when the window shades are not drawn; (2) the relative amount of floor space illuminated by direct sunshine before, during, and after school hours; and (3) the relative necessity for the use of window shades to prevent direct sunlight from falling on desk tops.

The method devised for obtaining the data here reported was as follows:

A model was constructed—finished and furnished in every detail—one-twelfth the size of a classroom thirty feet long, twenty-two feet wide, and twelve and one-half feet high from finished floor to finished ceiling, all interior measurements. Forty desks were set the long way of the room in five rows of eight desks each. There were six windows, each opening three feet wide and eight feet long, set to the left of the desks as they faced the front of the classroom. The bottoms of the windows were set four feet above the floor, and the mullions between the windows were one foot wide. The rear window was set eighteen inches from the rear wall, while the front window had five feet and six inches unglazed wall space between it and the front wall of the room. This approximates as nearly as possible a standard classroom.

This model was set up on the flat roof of one of the buildings of George Peabody College for Teachers, altogether out of the way of interference with sunlight. The points of the compass were laid off on the roof by the use of surveyors' instruments. Lines were marked, showing north, south, east, west, northeast, southeast, southwest, and northwest. The model was constructed on a pivot, so as readily to be moved to face different directions. When observations were to be made, the building was set so that the windows would face successively toward the northeast, east, southeast, south, southwest, west, and northwest, and data were recorded for each orientation.

Naturally it would be useless to take observations regarding a west orientation in the morning or an east orientation in the afternoon. Likewise, as the season progressed toward the winter, when the sun came up later and was swinging farther and farther toward the south, there was no use to take observations when the windows were toward the northeast or toward the northwest. Of course, also, since we were dealing with data concerning direct sunshine only, at no time during the experiment was there need, in latitude 36° 10′ north, to set the windows facing the north.

The model gave us, because of its size and the construction which made possible an accurate adjustment of orientation at will, the opportunity to secure accurate data directly comparable in all particulars to the conditions which would prevail in actual schoolrooms facing in various directions.

Data were gathered from 8 o'clock in the morning to 4 o'clock in the afternoon during one day each week for five months, from November 11 to April 10. This paper contains a summary of these observations.

Sunshine in a classroom is desirable. It is obvious that a classroom

which gets a bath of sunshine before school begins in the morning or after school closes in the afternoon will be a more wholesome room for children to work in, other things being equal, than one not so favored with sunshine. The morning sun on clear days and the afternoon sun on similar days will, if shades are up, sweep over a large part of the room, leaving warmth, having, through the small amount of ultra-violet rays penetrating the glass, some germicidal effect, and exerting much drying effect of direct sunshine on exposed bacteria. For the pupil to attempt to do his work satisfactorily with much direct sunshine on the top of his desk is, however, unhygienic, and, indeed, practically impossible.

After a considerable amount of experimentation to determine what proportion of a desk top must be touched by direct sunlight to constitute serious interference with the pupil, we arrived at the following conclusions: If one-third of the desk top is so illuminated, it becomes seriously troublesome, and especially if this be on the right side of the desk. Generally, however, it happens that it is on the left side when the desk top is only partially illuminated. We have, then, more or less arbitrarily counted as "sunlight interference" all cases where at least one-third of the desk top is so illuminated.

The particular problem of the study is to find that orientation which will give the best indirect light during school hours and the greatest amount of direct sunshine *before* and *after* school hours.

In the following pages our observations are summarized. The data are given, for each orientation, for every hour of the school day during the period from November to April. The total number of hours of interference on desk tops is recorded, for each direction in which the schoolroom may face. The periods in the day in which such interference prevailed are stated for each orientation. The average number of hours daily of sunlight interference is given for each orientation on each of the eighteen dates on which the weekly observations were made. Likewise is shown the number of times the direct sunshine entirely covered the floor.

By the term "desk-hour interference" we mean the number of desk tops which received, at the hours of observation, on one-third or more of their area direct illumination of sunlight while the window shades were up. If a classroom had been set with the windows facing directly northeast, there would have been, in the course of the year, as recorded in eighteen observations spaced a week apart, 165 desk hours of interference between 8 A.M. and the time when direct sunshine left the room. This time would be about 9 A.M. If the room had been facing east, it would have received 1,336 desk hours of interference between 8 o'clock and about 11 o'clock, or, in other words, during the morning.

If it had been facing southeast, it would have been receiving direct sunshine on one or more of the desks from 8 A.M. to 3 P.M., totaling 2,458 desk hours during the eighteen observation days of the experiment. If the classroom had been faced toward the south, it would have received, during this period, 2,885 desk hours of interference between 8 A.M. and 4 P.M., or during the entire school day. If the windows had been facing toward the southwest, there would have been 2,191 desk hours of interference between 11 A.M. and 4 P.M. If the windows had been turned directly toward the west, then during the school days, for the eighteen dates of observation, 828 desk hours of interference would have resulted if the window shades had not been drawn. The average number of hours of interference each day, for each direction in which the schoolroom may face, is also given.

Perhaps the data will be better understood if we take a particular orientation and analyze it more completely. For example, let us assume that the windows of a classroom are faced toward the east. Then during no part of the school year will there be any trouble with direct sunlight after 11 o'clock.

The detailed data of our observations show that, in this latitude, there is more interference during the winter months at 8 o'clock, 9 o'clock, 10 o'clock, and 11 o'clock than during the fall and spring months. There were, for example, 62 desk hours of interference on November 11 during the morning; on January 14 there were 83; and on April 10 there were 56. Naturally there is little difference in the interference at 8 o'clock; the chief differences in the numbers arise during the two hours from 9 o'clock to 11 o'clock in the morning during the winter months. These arise from the fact that the sun is lower in the horizon in the winter time at 9 o'clock, 10 o'clock, and 11 o'clock than it is in the spring or fall at the same hours. Since school is usually not in session until 9 o'clock, the difference in interference is thus more marked between the seasons.

If the building is set so that the windows will face toward the southeast, naturally the direct sunshine will get a better chance in the late fall and winter season, and less chance in the late spring, to interfere with the children at their desks. And this will happen during the main part of the school year from 8 o'clock in the morning until 2 o'clock in the afternoon, except in the early fall and late spring. Again, if the windows are faced to the south, the interference is likewise for the whole day, but is more marked from 10 o'clock until 3 o'clock; but during the winter season the number of desk hours of interference varies but little from 10 o'clock in the morning to 4 o'clock in the afternoon. If the orientation is such as to face the windows toward the southwest, interference begins as early as 11 A.M. and

continues throughout the school session, getting greater during the remainder of the day. If the classroom be set toward the west, naturally the increase in interference will be rapid from 2 o'clock until 4 o'clock.

Thus much may be said for the interference of direct sunlight on the tops of desks. We may turn now to consider sunlight on the floor, a beneficial condition if obtained without interference with pupils.

When we summarize the data gathered to show the total amount of direct sunshine on the floor of the classroom during the dates and hours of the observations made, we find that all exposures except the northeast, the north, and the northwest receive sufficient direct sunshine to reach across the floor at some time during the day, if the window shades are up.

During seventeen days of the observations the east orientation allowed the sunshine to pass entirely across the floor at 8 o'clock, and on nine of these days at 9 o'clock. The southeast exposure allowed the sunshine to pass entirely across the room at 8 o'clock during fifteen days of observation, and at 9 o'clock on twelve days. With a south exposure there were only eight days at 2 P.M., eleven days at 3 P.M., and one day at 4 P.M., and obviously during the winter months, when the sunlight reached entirely across the room. When the schoolroom faced toward the southwest, direct sunshine crossed the room during eight observation days at 2 P.M., thirteen days at 3 P.M., and eighteen days at 4 P.M. With west orientation, there were seven observation days at 3 P.M. and ten days at 4 P.M. when sunlight thus entirely crossed the floor.

It is obvious that, during any hour of the day, if the direct sunlight would sweep across the room, that part of the building would be more hygienically conditioned than it would be without such sanitary influence. Taking all things into account, the southeast and the southwest orientation would command more floor purification than any other orientation during school hours, *if the shades could be left up;* but this condition could not be permitted during this time, for these are the very hours when sunshine must be kept from the desks by pulling down the shades.

With an east exposure, the room gets the largest purification before school hours and at a time when there is no call to pull down shades; and the room with a west exposure gets the largest in the afternoon after school hours, when all shades should be up. In other words, the interference of direct sunlight with the east or west exposure is far less than with any other orientation, while at the same time it gives opportunity for much sunlight purification. The southeast, south, and southwest orientations all give large sunnings of the floor, *if the*

shades are up; but with these orientations, during every clear day, the shades must be pulled down at all hours of the day to prevent direct sunshine's falling on the desks of the children.

We are able to say definitely and decisively that, in the latitude of 39° 10′ north, the best orientation for classrooms is either east or west. These orientations furnish opportunity for purification of the room by sunlight before and after school, without interference with pupils, and call for fewer hours with the window shades down during school hours than does any other orientation.

It must also not be forgotten, in this connection, that when shades are pulled down and dependence is made on the windows for ventilation, drawn shades will interfere with ideal conditions by impeding ventilation. Shades will also darken the room, thus penalizing children in the comparatively unlighted seats. Except in the north, northeast, and northwest orientations, teachers cannot put up shades during school hours without harm to the children; but these orientations would not be advisable because of lack of sunshine.

It is no doubt true also that teachers, even with east or west exposure, forget or neglect to handle their shades properly; but these neglects cannot be taken into consideration in any attempt at establishing a scientific basis for orientation. The failure to practice often follows far behind knowledge.

In classrooms facing toward the *east,* all shades on windows should be put up at 11 o'clock and left up until the next day, when interference begins again when the school hour begins. In classrooms facing the *west,* the shades should be put up the first thing after school in the afternoon and left up until the interference begins the next afternoon. With southeast, south, and southwest orientation, the shades must be left down during clear weather practically all the school day; hence the hygienic operation of direct sunlight is prevented, and trouble with ventilation and reduced light in the darker portions of the room will be present constantly.

The question will arise in the mind of the reader as to what will happen further north or further south than latitude 36° 10′ north during the same hours and same dates.

It is obvious that the further north we go, the greater the number of days the sunshine would sweep entirely across the floor, under the conditions we have mentioned, with southeast, south, and southwest orientation; but because of the necessity of increased use of shades, the difficulties would be increased of securing ventilation by means of the windows and obtaining ample light for the whole room.

From November 11 to April 10, making a record one day each week, with the building facing northeast, we found, at 8 o'clock in

the morning, that 138 desks were troubled with direct sunshine. This would average 7.72+ desks per day so troubled. With the same orientation throughout the same time, we found that, at 9 o'clock, only 26 desks, or approximately an average of 1.5 desks, were illuminated with direct sunshine. At no other hour, through the whole experiment, did any desk top receive direct sunshine with the windows facing the northeast.

During the same period, with an east orientation, there were 591 desks at 8 o'clock, 431 desks at 9 o'clock, 256 desks at 10 o'clock, and none at 11 o'clock receiving direct sunshine, or a total of 1,336 desks recording troublesome sunshine at these hours.

When the windows were faced toward the southeast, at 8 o'clock, 546 desk tops were illuminated with direct sunshine; at 9 o'clock, 525; at 11 o'clock, 370; at 12 o'clock, 246; at 1 P.M., 156; at 2 P.M., 72; and none later—making a total of 2,458 desks receiving direct sunshine during the hours and the dates upon which the observations were made with a southeast orientation.

When the model was turned with the windows facing the south, at 8 o'clock, during this period and dates, 122 desk tops received direct sunlight; at 9 o'clock, 220; at 10 o'clock, 297; at 11 o'clock, 338; at noon, 399; at 1 P.M., 434; at 2 P.M., 434; at 3 P.M., 362; and at 4 P.M., 279—making a total of 2,885 desk tops with at least one-third of their surface covered with direct sunshine. When the model was faced toward the southwest, no interference occurred until 11 o'clock at any of the dates; but at 11 o'clock, during the time of the experiment, 60 desks received direct sunshine; at noon, 175; at 1 P.M., 310; at 2 P.M., 480; at 3 P.M., 539; and at 4 P.M., 627—making a total of 2,191.

When the model was faced toward the west, no interference occurred at 1 o'clock; but at 2 P.M., 146 desks received during the period direct illumination; at 3 P.M., 287; and at 4 P.M., 395—making a total of 828.

Of course, the reader will observe that at each hour all desk tops receiving direct sunshine upon one-third or more of their surfaces were counted, and these totals do not mean different individual desks, but simply the number of desk tops illuminated as indicated during the hours and dates on which the experiments were made. For example, if a given desk in the second row from the window received direct sunshine at 8 o'clock, at each or many of the periods of observation, this desk top would be counted each time, because at that hour, at that date, it was illuminated with troublesome sunshine, and the children seated there would have been seriously disturbed unless the shades had been drawn. This explanation holds throughout all these figures.

From these observations, then, we see that, owing to the fact that in only three periods during school hours west sun can shine on the desk tops, west orientation offers the least disturbance with direct sunshine and consequently with shades. At 2 o'clock, 3 o'clock, and 4 o'clock, 828 hours of interference with direct sunshine were recorded. The east orientation, which is next lowest in hours of interference, requires that four school hours be taken into account. Most schools, however, begin the day at 9 rather than 8; so that for them only during three hours, or from the 9 o'clock hour to the 11 o'clock hour, inclusive, would there be any interference. It is true also that many schools close before 4 o'clock, especially the lower grades, in towns and cities. These usually close not later than 3 o'clock.

With both east and west exposure, therefore, regarding schools with a shorter day than we contemplate, the figures will show a greater number of hours of troublesome sunshine on desk tops than will actually occur, and also fewer purification hours.

With southeast orientation, our observations show that during all of the mornings from 8 o'clock until noon, except the two observations made on April 3 and 10, there was direct sunshine on desk tops every date in the fall and winter months. Even up to 2 o'clock there were troubles every day. With the windows facing toward the south, during every hour and on every date, except 8 o'clock, March 22, April 3 and 10, and at 9 o'clock, April 3 and 10, and at 10 o'clock, April 10, a number of desks, varying, of course, with the season, received troublesome direct sunshine, totaling 2,885 desk hours. With windows facing toward the southwest, troublesome sunlight on desk tops was observed at 11 o'clock, noon, 1 P.M., 2 P.M., 3 P.M., and 4 P.M., for every date, except the last seven observations at 11 o'clock, during February, March, and April. Naturally these difficulties increased up to 4 o'clock.

If we were to make comparisons with the school day starting at 9 o'clock and closing at 3 o'clock, the figures representing the number of hours of interference with direct sunlight on desk tops would run as follows: Northeast exposure, 26 hours; west exposure, 433 hours; east exposure, 745 hours; southeast exposure, 1,912 hours; south exposure, 2,484 hours; and southwest exposure, 1,564 hours. These figures show the relative difficulty, when shades are up, with direct sunlight on the desks of the children during the hours and dates previously mentioned.

It is very clear, then, taking into the account only this one trouble, that, naming the orientations in the order of their *least* interference, they are: Northeast, first; west, second; east, third; southwest, fourth; southeast, fifth; and south, last. Likewise, if we open school

at 8 o'clock and close it at 4 o'clock, the desk hours of interference during these days and periods of observation would demand, if this alone were taken into account, the same orientation as the figures prevailing if school opened at 9 o'clock and closed at 3 o'clock. But, as mentioned elsewhere, it is of great value to flood a classroom with sunshine during the early morning and the late afternoon in order to meet the demands of safe sanitation. We know also that when school is in session, shades must be drawn to cut out direct sunshine on the desks of the children. It therefore follows that, during those hours of the day when children are in school, the greatest possible number of desk hours of interference will correlate directly with the greatest number of hours at which shades must be drawn to relieve the children from the disturbance of direct sunshine on their desks. This will also correlate to a greater or less extent with the difficulties of ventilation by windows, because when shades are drawn it is more difficult to ventilate than when they are completely rolled up.

Our observations taken to show the frequency direct sunshine would cross the floor, and hence have a tendency to a larger purification, are represented by the following summary:

The observations show that direct sunlight crossed the floor on 39 days with a southwest exposure, 27 with a southeast, 26 with an east, 20 with a south, 17 with a west, and none with a northeast exposure. If shades were not required, these figures would show a preference for the orientation in the order thus mentioned; but it is unhygienic and unallowable to put children to work at desks receiving direct sunshine; and hence the preference shown by this last set of figures amounts to nothing, because the shades would have to be drawn to meet the demands of the children.

Without going into further detail, we are completely justified in concluding that, whether school begins at 8 o'clock or 9 o'clock in the morning and closes at 4 o'clock or 3 o'clock in the afternoon, other things equal, the order of preference of orientation is *west, east, southwest, southeast,* and *south.*

This conclusion is further reinforced by the fact, though this experiment has not recorded data on this point, that teachers forget to roll up the shades as soon as the demands for pulling them down have ceased, and hence the children suffer from lack of light more frequently when shades have to be manipulated. With east exposure, as soon as direct sunshine would leave the room, the shades should be rolled up and not touched again until next morning. This habit could be fairly easily established, much to the advantage of the children, especially to those seated the greatest distance from the windows. With west orientation, the shades should be rolled up at the close of

the school day and not touched again until the next afternoon when direct sunshine again begins to bother. Here again a habit could be easily established, because, in each of these cases, shades would have to be manipulated only twice a day during sunny days; while for other orientations, except for north, northeast, and northwest, there would be a demand for manipulating shades during the entire day, and it would soon become a habit to fix them in the morning and leave them all day long, much to the disadvantage of the children.

TABLE I

A SUMMARY OF THE DATA REGARDING SUNLIGHT IN SCHOOLROOMS WITH EXPOSURE TOWARD VARIOUS POINTS OF THE COMPASS

Orientation	Direct Sunlight Interference on Desks			Sunlight Reaches Across Entire Floor of Room			
	Total number of desk hours of interference	Hours of day at which interference prevailed	Average number of hours of interference per day	Crosses entire room	Hours of day at which sunlight crosses	Number of times occurring at each hour	Total number of times occurring
Northeast	165	8 A.M. to 9 A.M.	1 4/18	No	None	None	0
East	1,336	8 A.M. to 11 A.M.	3 10/18	Yes	8 A.M.	17	26
					9 A.M.	9	
Southeast	2,458	8 A.M. to 3 P.M.	6 6/18	Yes	8 A.M.	15	27
					9 A.M.	12	
South	2,885	8 A.M. to 4 P.M.	8 12/18	Yes	2 P.M.	8	20
					3 P.M.	11	
					4 P.M.	1	
Southwest	2,191	11 A.M. to 4 P.M.	5 11/18	Yes	2 P.M.	8	39
					3 P.M.	13	
					4 P.M.	18	
West	828	2 P.M. to 4 P.M.	3	Yes	3 P.M.	7	17
					4 P.M.	10	

NOTE.—The data are derived from eighteen observations, one each week, made for five months, from November 11 to April 10, in latitude 36° 10′ north.

THE LIBRARIAN AND THE SCHOOL FACULTY

PEARL G. CARSON
George Peabody College for Teachers

That the librarian should have a rank on any school faculty equal to that of the teachers, should receive the same salary as they if offering the same qualifications of education and experience as theirs, should have the same right and obligation to attend faculty meetings and to take part in them, should have the same vacations or, if not, should receive additional salary for additional weeks of work done, and should have the same social privileges, all librarians who have pride in their profession agree.

These conditions, unfortunately, do not always prevail. If librarians, however, are to hold a place nominally equal to that of the school faculty, they must also in actuality be their equal. If they are not, is the failure due to the librarians' offering insufficient qualifications or to the schools' lack of recognition of what should be expected of librarians?

What academic and professional training do librarians have? How do the statistics regarding them compare with similar statistics for members of the teaching profession?

To obtain some definite information on this point, I recently examined the catalogs of all the teachers colleges, colleges, and universities of a certain state in which I happened to be particularly interested. I found that, in most cases, the qualifications, academic or technical, of the librarians were not mentioned. Occasionally degrees were noted, but the professional training was not stated. For the instructors, on the contrary, all pertinent information was usually given.

This distinction seems to indicate that although these institutions may pride themselves on the scholarship of their teaching body, they either do not consider this quality quite so essential in the librarian or they do not have librarians equal in preparation to the teachers, and they prefer not to state the fact clearly. Both conditions probably exist. In connection with the latter alternative, it might be suggested that they have perhaps not been able to obtain adequately equipped librarians. Superintendent Jesse Newlon, of Denver, was quoted in *School and Society* on July 24, 1926, as saying: "We have (in Denver) conducted a nation-wide search for librarians for our junior and senior high schools, and with great difficulty have brought

together a group that seems fairly satisfactory, but we have been impressed at every turn by the great scarcity of good material in this field."

There have, indeed, been librarians ever since there have been collections of printed or written matter large enough to warrant their being put under the charge of a custodian; yet librarianship, considered as a profession, is a comparatively recent idea, a conception not yet fully grasped by the general public.

In order to convince this public, including the academic world, that the work of a librarian is indeed a profession, it is first necessary for librarians themselves to know just what they mean when they use the term. According to that high authority, the Oxford Dictionary, a profession is "a vocation in which a professed knowledge of some department of learning or science is used in its application to the affairs of others or in the practice of an art founded upon it."

Those earlier custodian librarians were scholars, sometimes of high reputation; but their interest often extended to books only and not to the service to which books might be placed. Today, it may be, service is often emphasized without sufficient regard to the scholarship which enriches the service. A profession includes both knowledge and service.

To be sure, there have been many excellent examples of men and women who have done outstanding work in librarianship, yet whose training came entirely from experience, perhaps under the tutorship of an older librarian. The same preparation formerly prevailed in medicine and law; the young would-be doctor or embryo lawyer studied under the guidance of an older member of the profession, and so received his training. Such procedure is not acceptable today in these professions; librarians, for the dignity and adequacy of their profession, must strive to make it less so in librarianship. Although the worth of apprenticeship should not be undervalued, yet as training it is unlikely to give the broad outlook or the ready adaptability to new situations that training in a school will give. It is more likely to produce that type of librarian who knows but one way to do a thing, can view his work from but one angle, and becomes exceedingly critical toward all variations found elsewhere. The profession needs to be lifted far above this, and it needs to safeguard itself so that an elevation of standards may be achievable.

Those who see in librarianship magnificent possibilities for human service and for the advancement of scholarship agree with the writer in the *Librarian* of November, 1928, who says: "Every body of men whose work involves them in special training makes some effort to protect that training; to forbid the invasion by untrained people of

its sphere of work. Few professions have been so subject to such invasion as librarianship. To this day the invader adopts the obvious line of disparaging technical training and advancing some other form of qualification."

The need of advance is perceived not only by discerning librarians. A word from one outside the profession, from an English author, may not come amiss. Arnold Bennett says, in the *English Standard*, and is afterwards quoted in the *Library World* of November, 1928: "One hears that [libraries] do not spend enough on books. I would reply that if they spent less on books and more on an educated staff, far better results would be obtained."

The training of librarians should be in every way equal to that of teachers. Yet even when qualifications of scholarship and training are equal, a change of attitude, it seems, is needed between librarians and teachers, if the two are to work together harmoniously and efficiently on a school staff. This change of attitude may not always be easy. When one is a librarian, for instance, it is not easy to see that librarians need any change. I myself came into librarianship from the field of teaching. I believed that the library world would offer broader opportunities both for service for others and for the exertion of certain individual capacities that I found hedged and restrained within the narrower limits of the classroom. I felt that I was entering a bigger world, and, in truth, it was bigger in the extent and range of its possibilities for service and for personal growth; but I also found much that was regrettable. In fact, I was rather shocked by some of the things I found habitual even in many good librarians.

When, for instance, the talk bore upon people, there was too often a tone of superiority over the ignorant layman who did not realize the wonderful opportunity that lay at his very door and seemed to believe that there were some things in life worth doing besides reading library books and helping to swell the library circulation. But of all the charges I found myself making against my new friends, one of the most serious—for I had just come from the teaching field—concerned the atmosphere of criticism by the librarians into which teachers, one and all, were submerged, although they may not have known it, because of their seeming lack of respect and definite lack of knowledge of all the minutia of library detail.

There prevailed, it seemed to me, in both librarians and teachers a lack of tolerance and of bigness of spirit. Teachers refused to understand the necessity and reasonableness of many of the librarians' requirements of them; and, on the other hand, too many librarians, recognizing only the need for exactness, accuracy, and detail in their work, valuable as these are, were failing to look up and on out of the

valley of their own narrow conceptions of life and duty. Each, magnifying his own task, with its techniques and its worries, failed to perceive his work as merely one of the many endeavors for human betterment which must work happily together, each carrying on in its own small way.

Since then I have met bigger librarians and smaller ones. I have found smallness in big librarians and bigness in small ones. I have found them very human and not a race set off by themselves. They may be the "chosen people," as some seem verily to believe, but, even so, they do not differ much from the ordinary Gentile neighbors. I have also found that the accusations made by librarians against the ignorance of the laity regarding the value of books and the library are often true, and the indifference and disregard of many teachers toward the necessary library routine are most soul-trying. Still, irritations such as these come not only to librarians. Indifference, ignorance, selfishness in demands made, come to all who work with people; and each of us possesses too many of the same qualities to permit ourselves to become grossly intolerant or cynical or over self-satisfied when we meet them in others.

A library student recently said, "Among writers on library science I have three prime favorites, but there is one that I do not like at all;" and she mentioned a name well known among librarians, author of an article frequently included in the list of required readings for first-year students in library schools. This student said that it irritated her to find a librarian impatient with people who came into the library wanting to use it but not knowing how. Why should a person who had seldom or never used a card catalog understand its many perplexities until they were explained to him? Why should he be expected to know about author, title, and subject cards, *see* and *see also* references, call numbers, variations in filing, and the host of other technicalities that make up library technique? Why should the librarian smile favorably only upon those who have already been initiated into library mysteries? This student is a woman of teaching experience. She is entering the library profession because she thinks that she sees in it possibilities of helpfulness to a greater number of students and people than classroom work permitted. Her idea is to give the most help to those who most need it. If librarians and teachers are to stand on an equality, both need the high ideal of service that this teacher is about to carry with her into library work.

That the librarian's place on the school faculty should be equivalent to that of the teachers may be a truism among librarians; it is not yet so among educators. Let equality be obtained by both school authorities and librarians demanding in librarians scholarship equal to that

of the teaching staff; or let it be even better, since librarians have still to prove themselves. Let this scholarship have depth as well as breadth. Knowledge is not limited to general survey courses in literature. Evaluation of a book requires more than personal impressions—not only these, but also some acquaintance with standards and criteria of criticism. Librarians, as well as teachers, need college degrees; but why stop there? Let them continue with correspondence courses, or follow some of the *Reading With a Purpose* courses themselves, or take advantage of other movements of today for adult education toward or supplementing college degrees. Let them keep setting themselves intellectual goals always a little farther on than their present attainment. Let school men recognize scholarship as a necessary qualification when they seek librarians.

Let efficiency be increased by constant studying of new and different methods of organization, both of material and of work, to secure the best results with the least expenditure of time and effort. This will give more time for the human side of library work, the side that considers the public—the stupid, the foolish, the intelligent—of first importance, and books of second.

Let librarians keep a due sense of modesty. Let them not confuse a superficial knowledge of many authors and titles with really deep knowledge of a subject. Let them keep in mind that inefficiency in quick use of the catalog or other library tools does not necessarily denote stupidity on the part of the faculty or of other users of the library. There need be proper respect and appreciation on both sides—faculty toward librarian and librarian toward faculty.

Let us repeat: The librarian's place on the school faculty should stand on a level with the teaching members in salary and in professional and social considerations; and surely the best way to obtain this equal consideration is for librarians to place themselves on the same, and even on a higher, basis of scholarship, professional training, and service. Librarianship is a noble profession. Librarians need to uphold it in every possible way, so that recognition will be granted not only because they demand it, but because it is their due.

THREE ENEMIES OF EDUCATION

MONTAGU FRANK MODDER
West Virginia University

In a syndicated press article, some time ago, President Glenn Frank, of the University of Wisconsin, made the following interesting statement:

> There are three things that come near to making education impossible in our schools. These three enemies of education are—viz.: Notebooks, Credits, and Examinations. The notebook mania turns students into reporters instead of learners. . . . The credit mania turns students into prize hunters instead of learners. . . . The examination mania turns students into professional witnesses instead of learners. . . .

This is indeed an interesting statement, partly because it comes from the head of one of the greatest institutions of learning in the country, and it is in a great measure indicative of the tremendous problem facing the average teacher in his classroom. The purpose of a school is clearly set forth in terms of scholarship and learning. If there is no learning, there is no real school. The school exists that it may teach, inspire, and direct the learner.

The three enemies of our present system of education were not always enemies. Surely the Notebook, the Credit system, and the Examination were originally instituted as a *means* toward an end, and the *end* was learning. If the once-useful mechanism has become perverted, if the means have become the end, then the three are indeed enemies of the learner, and educators should do something urgent to correct the error.

In some places, no doubt, the use of the notebook is overemphasized, too much attention is paid to credits, and there is too much cramming for examinations. Teachers without vision unintentionally encourage their students to perfect themselves in what is readily seen and come far short of that which is less easily discernible but far more important. Under such teachers it is easy to fall short of the larger interpretations, the more beneficial values in the processes of learning.

Let us consider the notebook first. There is nothing more helpful than an intelligently kept notebook to the person who really desires to follow his subject from one aspect of it to another. Jottings made in class and revised later are precious in a review study of a course, whether this be immediate or only after a long interval of time. Here

is the means of jogging one's memory. The notebooks of a teacher's college days are likely to be turned to at frequent intervals in his teaching experience.

Note taking is an art, although it may be treated merely as a system. It should be practiced with an intelligent interest in the subject under consideration. An effort should be made to instruct freshmen in the art of keeping a serviceable notebook, and the following points may be brought to their notice:

The purpose of notes:

(a) A shorthand transcript is not the ideal form of notes.
(b) The "catchword" system of note taking is worthless.
(c) Unaided memory is not sufficient. One should follow up notes taken in class with a little work in the reference room of the library. The material in notes should be amplified after class.
(d) Try to get as many complete statements as possible.
(e) Follow a plan, a syllabus, and adopt a uniform system of spacing and symbols. Leave space for additions.
(f) Desirability of looking over notes when they are "cold."
(g) Undesirability of notes in pencil. Remember that notes are of little use unless they can be read easily.

Apart from the notes taken in class, there are the notes made in the study or library, which are even more important from the learner's point of view. The summary or abstract is most helpful when one is far away from a good library, perhaps in the teaching field, in after years. The notebooks that contain digests, summaries, and abstracts become a storehouse for future use. Students should be carefully instructed in the procedure of preparing summaries. Here are perhaps the points to be especially impressed: (1) Read the original carefully, (2) analyze it, (3) distinguish the essential from the unessential ideas, and (4) revise the summary to secure (a) further condensation and (b) smoothness of transition from one idea to another. Every care should be taken to avoid the retention of trivial details and a style jerky and broken.

When one thinks of the satisfaction one feels in the "fun" of keeping a neat notebook and the tremendous pleasure one experiences when one finds the desired note, the exact reference—! Of course, we do appreciate President Frank's observation when the notebook ceases to be a *means*, as in the case of hundreds of compelled students, and when it becomes the *end* of all interest in one's subject. Some students are entirely lost if, through some accident, they are separated from their notebooks. With them the notebook is the sole depository of their learning.

The credit system is pernicious in many respects. There is very

little that one can say in its favor, except that it is a *convenient* method of reckoning *time* spent in courses at school and college. "What have you done in History?" The answer comes, in terms of credits: "I have had four hours." It is not a matter of how much history you know and remember and appreciate, but of how much time you have marked in a room where a certain amount of exposure to history was formally catalogued as occurrent.

In connection with credits, we have the grading system, which is under fire at all times simply because there is, among teachers, such a variety of styles of estimating exercises in class recitation and writing. One cannot be very mechanical in estimating values connected with human intelligence, especially in the case of young students, whose emotions play so important a part in the day's work. One wonders what might take the place of this credit system? Here is an opportunity for a genius, a real lover of learning. In many schools the procedure has been simplified by the substitution of letters instead of percentages and even, as in England, the announcement of two groups only—"Pass" students and "Fail" students.

With regard to examinations, there seems to be a very unfortunate attitude in the average school and college. The average student looks upon the inevitable examination as a sore trial, a tribulation, a menace, an insult, and a vexation. It is very much like an operation or an experience in the dental chair—something very painful, and the sooner one gets over it the better. Effort should be made to correct this attitude wherever it prevails.

The best analogy to present the right attitude toward desirable studious habits is to portray the experience of a football team. It shows the necessity of attending classes regularly (the team has regular sessions), of daily quizzes and recitations (the team has daily practice in signals and running and punting), of a final examination (the team plays a final big game, with a tremendous display of color and noise). The big game is regarded by the team as an *opportunity* for the individual member to *show off* what he has learned during the tedious weeks of practice and the routine of lesser contests. Likewise, the final examination is the *opportunity* for the individual student to *show off* what he has learned and assimilated and discovered in class and out of class. Here is his chance to reveal his powers, to exhibit his ability, to prove his worth. Of course, there is no grand-stand cheering, but the pleasures of learning do not need that sort of stimulation. There are rewards, both tangible and intangible, for the student who plays a good game in the field of scholarship and learning, and the examination is his glorious opportunity to "rise and shine."

THE HIGH-SCHOOL SCIENCE LIBRARY FOR 1928-1929

HANOR A. WEBB
(Editor of *Current Science*)
George Peabody College for Teachers

For the fifth time[1] it is our pleasant opportunity to examine a truly imposing shelf of science books, and select, classify, and briefly describe those which we would most heartily recommend to an inquiring high-school librarian. This list is characterized by the same plans and viewpoints which, it is hoped, have made its predecessors useful. They are:

1. The classification into price groups, accommodating budgets from $10 to more than $250.

2. The recommendation of a variety of science fields for even the minimum purchase. Librarians—science teachers also, for that matter—should play no favorites between fundamental fields of practical science.

3. A seasonal arrangement of the list, in which general books and those concerning the home appear early, as if suggested for autumn purchases; volumes on radio and the stars might be a mid-winter acquisition; and books on plant and animal life, gardening, and the outdoor world come in the titles of the closing pages, as if spring, the closing months of the school year, were the best time to receive them new and ready for use. This may help the librarian who makes several orders during the year and would prefer that the books included in each be those of immediate interest.

4. The books are very new, or are new revisions of volumes that have served faithfully, and have just received new plates and paragraphs. The imprints are of 1928 and early 1929; a few exceptions are titles of 1927 that were received too late for the 1927-1928 list. (In parenthesis may we add that the sight of a fellow publisher's pop-

[1]The preceding articles in this series are:
"The High-School Science Library—1910-1924," this Journal, Vol. 3, No. 2, 85-119 (September, 1925). Bound reprint, 25 cents.
"The High-School Science Library for 1925" (1925-6), this Journal, Vol. 3, No. 6, 340-347 (May, 1926). Bound reprint, 10 cents.
"The High-School Science Library for 1926" (1926-7), this Journal, Vol. 4, No. 6 (May, 1927). Bound reprint, 10 cents.
"The High-School Science Library for 1928" (1927-8), this Journal, Vol. 5, No. 5 (March, 1928). Bound reprint, 10 cents.

ular title "on parade" will move certain executives in the book business more effectively than all of our direct letters.)

5. The books have been personally examined. There has been much judgment, but no guesswork, in the classification and annotations. These volumes are now a part of a training-school library, and are in daily use by high-school pupils.

NEXT YEAR

Yes, there will be just as many new science books next year—possibly more! Publishing is a continuous—a ceaseless—business. Librarians, therefore, should have ever-recurring appropriations for science books. To stock up during a certain year, then wait indefinitely for more, is inconsistent with the purpose for which high-school libraries are organized. Such a plan coöperates with neither publishers nor pupils. The former are generous wholesalers, the latter eager consumers. The librarian is a "middleman" of utmost importance, and, like all progressive folk of business, should keep fresh stock and enjoy a good turnover.

PUBLISHERS AND THEIR ADDRESSES

In the list that follows, publishers are indicated briefly; full names and addresses are here given:

A. L. A.: American Library Association, 86 E. Randolph St., Chicago, Ill.
Allyn: Allyn & Bacon, 50 Beacon St., Boston, Mass.
American Book: American Book Co., 300 Pike St., Cincinnati, O.
American Museum: American Museum of Natural History, Columbus Ave. and 77th St., New York City.
American School: American School Publishing Corporation, 443 4th Ave., New York City.
American Telephone: American Telephone and Telegraph Co., 195 Broadway, New York City.
Appleton: D. Appleton & Co., 35 W. 32d St., New York City.
Barnes: A. S. Barnes & Co., 67 W. 44th St., New York City.
Barrows: M. Barrows & Co., Huntington Chambers, Boston, Mass.
Bell: Bell Telephone Laboratories, 463 West St., New York City.
Bellows: Bellows-Reeve Co., 4750 Sheridan Road, Chicago, Ill.
Blakiston: P. Blakiston's Son & Co., 1012 Walnut St., Philadelphia, Pa.
Bobbs: Bobbs-Merrill Co., 724 N. Meridian St., Indianapolis, Ind.
Boy Scouts: Boy Scouts of America, 2 Park Ave., New York City.
Bruce: Bruce Publishing Co., 129 E. Michigan St., Milwaukee, Wis.
Burt: A. L. Burt Co., Inc., 114-120 E. 23d St., New York City.
Century: The Century Co., 353 4th Ave., New York City.
Chemical Foundation: The Chemical Foundation, Inc., 85 Beaver St., New York City.
Chicago: University of Chicago Press, 5750 Ellis Ave., Chicago, Ill.

Cleanliness: The Cleanliness Institute, 45 E. 17th St., New York City.
Clute: Willard N. Clute & Co., Butler University, Indianapolis, Ind.
Crowell: T. Y. Crowell Co., 393 4th Ave., New York City.
Davis: F. A. Davis Co., 1914-1916 Cherry St., Philadelphia, Pa.
Day: John Day Co., Inc., 386 4th Ave., New York City.
Dodd: Dodd, Mead & Co., Inc., 443 4th Ave., New York City.
Doubleday: Doubleday, Doran & Co., Garden City, N. Y.
Dutton: E. P. Dutton & Co., Inc., 286-302 4th Ave., New York City.
Ginn: Ginn & Co., 15 Ashburton Place, Boston, Mass.
Globe: Globe Book Co., 175 5th Ave., New York City.
Grosset: Grosset & Dunlap, 1140 Broadway, New York City.
Harcourt: Harcourt, Brace & Co., 383 Madison Ave., New York City.
Harper: Harper & Brothers, 49 E. 33d St., New York City.
Harvard: Harvard University Press, Randall Hall, Cambridge, Mass.
Holt: Henry Holt & Co., Inc., 1 Park Ave., New York City.
Houghton: Houghton Mifflin Co., 2 Park St., Boston, Mass.
Jones: Marshall Jones Co., 212 Summer St., Boston, Mass.
Judd: Orange Judd Publishing Co., 15 E. 26th St., New York City.
Lea: Lea & Febiger, 600 S. Washington Sq., Philadelphia, Pa.
Lippincott: J. B. Lippincott Co., 227-231 E. Washington Sq., Philadelphia, Pa.
Little: Little, Brown & Co., 34 Beacon St., Boston, Mass.
Liveright: Horace Liveright, Inc., 61 W. 48th St., New York City.
Longmans: Longmans, Green & Co., 55 5th Ave., New York City.
Lothrop: Lothrop, Lea & Shepard Co., 275 Congress St., Boston, Mass.
McBride: Robert M. McBride & Co., 7 W. 16th St., New York City.
McGraw: McGraw-Hill Book Co., 370 7th Ave., New York City.
Macmillan: The Macmillan Co., 60 5th Ave., New York City.
Manual Arts: Manual Arts Press, 237 Monroe St., Peoria, Ill.
Metropolitan Life: Metropolitan Life Insurance Co., 1 Madison Ave., New York City.
Mosby: C. V. Mosby Co., 3523 Pine St., St. Louis, Mo.
Nelson: Thomas Nelson & Sons., 381-385 4th Ave., New York City.
Norton: W. W. Norton & Co., Inc., 70 5th Ave., New York City.
Oxford: Oxford University Press, 114 5th Ave., New York City.
Penn: Penn Publishing Co., 925 Filbert St., Philadelphia, Pa.
Popular Mechanics: Popular Mechanics Press, 200 E. Ontario St., Chicago, Ill.
Putnam: G. P. Putnam's Sons, 2-6 W. 45th St., New York City.
Ronald: Ronald Press Co., 15 E. 26th St., New York City.
Row: Row, Peterson & Co., 140 W. 22d St., New York City.
Sanborn: Benjamin H. Sanborn & Co., 15 W. 38th St., New York City.
Saunders: W. B. Saunders Co., W. Washington Sq., Philadelphia, Pa.
Scribner: Charles Scribner's Sons, 597 5th Ave., New York City.
Scientific Book: Scientific Book Corporation, 15 E. 26th St., New York City.
Silver: Silver, Burdette & Co., 41 Union Sq., West., New York City.
Stokes: Frederick A. Stokes Co., 443-449 4th Ave., New York City.
Stratford: Stratford Co., 289 Congress St., Boston, Mass.
Teachers College: Teachers College Press, 525 W. 120th St., New York City.
Van Nostrand: D. Van Nostrand Co., 8 Warren St., New York City.
Williams: Williams & Wilkins Co., Mt. Royal and Guilford Aves., Baltimore, Md.
World: World Book Co., Park Hill, Yonkers-on-Hudson, N. Y.
Yale: Yale University Press, 143 Elm St., New Haven, Conn.

1928-1929 BOOK LIST, PUBLICATIONS IN SCIENCE

TITLE, AUTHORSHIP, PUBLISHER, AND RECOMMENDED GROUPS

INTRODUCTIONS TO SCIENCE

Price Group

THE SPIRIT OF SCIENCE

$25 *Fun With Figures.* By A. Frederick Collins. xviii, 253 pp. Appleton $2.00
Arithmetic in stunts! Comedy, cartoons, and much history, too.

The Boy Scouts' Yearbook. Edited by Franklin K. Mathiews. 240 pp. Boy Scouts 2.50
A collection of the year's finest stories—largely adventurous science.

$50 *The Book of Electricity.* By Bertha Morris Parker. xii, 314 pp. Houghton .92
A silent reader of eight practical units; eighth grade.

Snapshots of Science. By E. E. Slosson. xvi, 299 pp. Century 2.00
Taken with a fast lens and film, with wide field and sharp focus—to continue the figure.

$100 *Inventions and Patents.* By Milton Wright. viii, 225 pp. McGraw 2.50
Stories of fortune makers; will appeal to inventive youngsters.

$250 *Man the Miracle Maker.* By Hendrik Van Loon. 252 pp. Liveright 3.50
How man has extended his skin, hand, foot, mouth, nose, ear, eye; inimitable Van Loon illustrations.

Over $250 *Science and History.* By A. L. Rowse. 87 pp. Norton 1.00
A philosophical essay that will stimulate the better students.

Gallio, or The Tyranny of Science. By J. W. N. Sullivan. 57 pp. Dutton 1.00
An essay, suggesting that science may be rule-ridden to the detriment of clear thinking.

Archimedes, or The Future of Physics. By L. L. Whyte. 83 pp. Dutton 1.00
An essay on prospective achievements, with a chapter on "The Physics of the Mind."

MEN OF SCIENTIFIC ACHIEVEMENT

$10 *Pivotal Figures of Science.* By Arthur A. Bostwick. 32 pp. A. L. A. .50
Names that are great—and why; books that help.

$25 *Pilots and Pathfinders.* By William L. and Stella H. Nida. xii, 411 pp. Macmillan 1.20
Vivid biographies; more than half concern explorers and inventors.

$100 *Lindbergh, the Lone Eagle.* By George Buchanan Fife. iv, 284 pp. Burt .75
Written by a newspaper man with a sense of the dramatic.

The Boy Who Found Out. By Mary Hazleton Wade. xii, 216 pp. Appleton 1.75
He was Jean Henri Fabre, the world's most patient naturalist.

$250 *The Boys' Life of the Wright Brothers.* By Mitchell V. Charnley. xii, 291 pp. Harper 2.00
A stimulus to sane hero worship.

Over $250 *Sir Isaac Newton—1727-1927.* Edited by F. E. Brasch. x, 351 pp. Williams 5.00
A bi-centenary tribute by thirteen specialists.

GENERAL SCIENCE, PHYSICS, AND CHEMISTRY

$100 *Our Environment and Its Relation to Us.* By Harry A. Carpenter and George C. Wood. xvii, 281 pp. Allyn 1.20
First book for junior high schools; liberal in experiments, illustrations, and teaching aids.

Our Environment—How We Adapt Ourselves to It. By Harry A. Carpenter and George C. Wood. xx, 435 pp. Allyn 1.20
Book Two for junior high school; attractive, teachable.

New Practical Physics. By Newton Henry Black and Harvey Nathaniel Davis. xii, 645 pp. Macmillan ---------- 1.20
Very new, even to "colored home movies."

Beginning Chemistry. By Gustav L. Fletcher, Herbert O. Smith, and Benjamin Harrow. 512 pp. American Book ---------- 1.60
With atomic structure "built in" rather than "grafted on."

Chemistry in Medicine. Edited by Julius Stieglitz. xxii, 757 pp. Chemical Foundation ---------- 2.00
Strikingly clear, fundamental chapters; understandable, with high-school chemistry background.

$250 *The Atom.* By Edward N. da Costa Andrade. 80 pp. Doubleday---- .75
One of the "little books of modern knowledge."

A History of Physics. By Florian Cajori. xvi, 424 pp. Macmillan-- 2.50
Revised; particularly good on present century.

Chemical Reactions and Their Equations. By Ingo W. D. Hackh. x, 145 pp. Blakiston ---------- 1.75
Six very concise chapters on difficult, yet indispensable, principles.

American Chemistry. By Harrison Hale. ix, 255 pp. Van Nostrand 2.50
Things accomplished, and prospects for the future.

Over $250 *General Science.* By E. J. Holmyard. xiv, 236 pp. Dutton---------- 1.35
A British contemporary of our numerous general science texts. Wouldn't you like to see what "our cousins" teach?

Junior Science. By Cyril A. Stebbins. xii, 352 pp. Macmillan------ 1.40
A reissue; almost exclusively plants and animals.

New Introduction to Science. By Bertha M. Clark. 480 pp. American Book ---------- 1.48
A complete revision of one of the first general science texts.

Laboratory Glass Blowing. By Francis C. Frary, Cyril S. Taylor, and Junius D. Edwards. x, 116 pp. McGraw---------- 1.50
A practical revision, adding Pyrex glass, and glass-to-metal sealing.

Modern Physics. By Charles E. Dull. viii, 778 pp. Holt---------- 1.80
Revised, particularly in radio and television.

Elements of Physics. By A. Wilmer Duff and Henry T. Weed. x, 565 pp. Longmans ---------- 2.20
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Human Physiology. By Percy G. Stiles. 444 pp. Saunders---------- 2.25
New revision of a standard text of direct style.

The Young Man and Medicine. By Lewellys F. Barker. xvi, 202 pp. Macmillan ---------- 2.50
Very sane advice to the young man who thinks he would like to be a doctor.

Over $250 *Physiology and Hygiene.* By Charles P. Emerson and George Herbert Betts. viii, 355 pp. Bobbs ---------- .72
A simple text with interesting experiments and sane advice.

The Human Body and Its Care. By S. Weir Newmayer and Edwin C. Broome. vii, 314 pp. American Book ..... .96
For the grades, but by no means too elementary for high-school reading assignment.

Personal Health. By Emery R. Hayburst. xii, 279 pp. McGraw 1.00
A plain book for general reading.

Topical Sources for "Personal Hygiene Applied." By Jesse Feiring Williams. 97 pp. Saunders 1.00
If you have the text (our list for 1925-6), this list of book and periodical references will aid in its study.

Guide for a Health Program. By Jessie L. Lummis and Willidell Schawe. viii, 196 pp. World 1.24
Although a teacher's manual for certain "health readers," this contains useful hints for general science class activities.

Keeping Young After Forty. By Eugene R. Whitmore. xii, 208 pp. Appleton 1.50
Sane medical advice. Lend to parents when the principal and teachers have read it.

School Posture and Seating. By Henry E. Bennett. xii, 323 pp. Ginn 2.00
A scientific—even statistical—presentation to teachers, physical directors, school officials.

Diabetic Manual for Patients. By Henry J. John. 202 pp. Mosby 2.00
Cheering, though strict, instructions for sufferers from this disease—which includes many school children.

Bacteriology for Nurses. By Charles F. Carter. 213 pp. Mosby 2.25
Full of simple experiments that would be good for high-school demonstrations.

The Physical Welfare of the School Child. By Charles H. Keene. xiv, 505 pp. Houghton 2.40
For the teacher; describes many healthful activities.

Laboratory Experiments in Physiology. By W. D. Zoethout. 251 pp. Mosby 2.25
An interesting mixture of elementary and advanced experiments.

An Elementary Manual of Physiology. By Russell Burton-Opitz. 419 pp. Saunders 2.50
Not a manual for your own experiments, but a record of today's knowledge as established by the best technicians in physiology.

Health and Wealth. By Louis I. Dublin. xvi, 361 pp. Harper 3.00
The statistician of a great life insurance company makes suggestions from his data.

Living Machinery. By A. V. Hill. xxii, 306 pp. Harcourt 3.00
Telling principally of muscles and nerves.

Physiology. By V. H. Mottram. 279 pp. Norton 3.00
Helpful for high-school reference.

A Textbook of Physiology. By William D. Zoethout. 664 pp. Mosby 4.50
One of the better reference books, since functions, processes, and foundations for hygiene are emphasized rather than structures.

Health Through Exercise

$50 *Recreative Athletics.* By the Playground and Recreation Association of America. vi, 199 pp. Barnes 1.00
Programs for groups large and small, all ages, sizes, weathers, climates, and seasons. Specific, practical. The motto: "Play *with* rather than *against* each other."

$100 *The Psychology of Coaching.* By Coleman R. Griffith. xiv, 213 pp. Scribner 2.00
Coaching as a science includes morale, personality, habit formation, even "the jinx" and "the hunch." Straight talk; practical; on a high plane.

$250 *Volley Ball for Women.* By Katherine W. Montgomery. xiv, 90 pp. Barnes 1.60
Details of a vigorous game for all.

Baseball for Girls and Women. By Gladys E. Palmer. xii, 140 pp. Barnes 1.60
Yes, they do play it! The book tells how, indoors and outdoors.

Basketball for Women. By Lon Eastwood Anderson. xvi, 129 pp. Macmillan ---------- 1.68
Special attention to teaching methods for the game.

Handbook of Athletics. By Graham Bickley. xii, 151 pp. Barnes---- 1.80
The fine points—the science—of baseball, track, basketball, football.

Basketball for Women. By Alice W. Frymer. xxvi, 260 pp. Barnes 2.00
Details of the best all-round game.

Over $250 *Play Days for Girls and Women.* By Margaret M. Duncan and Velda P. Cundiff. xvi, 87 pp. Barnes---------- 1.60
Specially organized programs for a day of physical activity.

Greek Physical Education. By Clarence A. Forbes. viii, 300 pp. Century ---------- 2.25
A scholarly book on the beginnings of scientific athletics. Gives a philosophy for exercise.

A Handbook of Stunts. By Martin Rodgers. xvi, 514 pp. Macmillan 3.00
A very comprehensive lay-out with the "athletics-for-all" idea.

The Development of Man

$25 *Prehistoric Man.* By George Grant MacCurdy. 46 pp. A. L. A.---- .50
Sketching the known facts, and listing books that tell more.

Elementary Eugenics. By Elliot R. Downing. viii, 137 pp. Chicago 1.75
One of the clearest, sanest presentations of heredity, designed for young folks. After all, "every family is a eugenic experiment."

$50 *Growing Up.* By Karl de Schweinitz. 111 pp. Macmillan---------- 1.75
A very frank story of how we became alive, were born, and grow up. Its sunny tone is "a light in dark places."

$250 *The Young Child.* By Bird T. Baldwin. 7, 34 pp. A. L. A.---------- .50
In which little sister and brother become objects of scientific importance; books that tell more.

Indian Heroes. By J. Walker McSpadden. xiv, 305 pp. Crowell---- 2.00
Thrilling tales that embrace much of crude science and clever woodcraft.

Over $250 *Apollonius, or The Present and Future of Psychic Research.* By Ernest N. Bennett. 79 pp. Dutton ---------- 1.00
An essay—somewhat deep—suggesting that the strange phenomena of the spirit are to be scientifically studied.

Before Columbus. By Cecil E. Stevens. xii, 191 pp. Silver---------- 1.32
Indian life in Puerto Rico before the Spaniards came. Primitive science and superstition.

Human Behavior. By Stephen S. Colvin, William C. Bagley, and Marion E. Macdonald. xii, 334 pp. Macmillan---------- 1.60
Thorough revision of a text that teachers discovered they could understand.

The Unique Status of Man. By H. Wildon Carr. 216 pp. Macmillan 1.75
For the thoughtful. Man alone can appreciate beauty, truth, and goodness.

If Parents Only Knew. By Elizabeth Cleveland. iv, 152 pp. Norton 1.75
A message from teachers to parents, urging coöperation, and explaining the way.

Training Children. By William Henry Pyle. x, 206 pp. Century---- 1.75
For earnest parents who wish to apply science to their youngsters as well as—well, you know!

The Ways of Behaviorism. By John B. Watson. vii, 144 pp. Harper 2.00
An attitude of psychology that discounts instinct; a bit deep, but interesting.

Living With Our Children. By Lillian M. Gilbreth. xii, 309 pp. Norton ---------- 2.50
The mother of eleven children, who is also an engineer and a Ph.D. in psychology, lays some exact plans. Lend this to intelligent parents.

Evolution and Man. By Hervey W. Shimer. vi, 273. Ginn---------- 2.60
A strictly new, scientific, non-controversial presentation of today's knowledge concerning evolution. Requires a good foundation of zoölogy.

Pilgrims, Indians, and Patriots. By Randolph G. Adams. xvi, 207 pp. Little ---------- 3.00
Mostly history, but much concerning the influence of raw materials and geographic features upon this history.

Prehistoric Man. By Keith Henderson. xvi, 276 pp. Dutton-------- 3.00
Authoritative and interpretative; not a tale.

A STRIKING SERIES

The Corridors of Time (five volumes). By Harold Peake and Herbert J. Fleure. Yale University ($2 per volume) ---------- $10.00

Man's story told, step by step, in a most scholarly yet intriguing fashion. The volumes are:

I. *Apes and Men.* vi, 138 pp.
A review of the contributions of anthropologists, geographers, geologists, and archeologists to the knowledge of very ancient man. A background of scientific information is necessary.

II. *Hunters and Artists.* vi, 154 pp.
Man at the close of the Great Ice Age; his tools, home life, art.

III. *Peasants and Potters.* v, 152 pp.
Man develops the art of crude invention, and begins to farm as well as hunt.

IV. *Priests and Kings.* 208 pp.
Man begins to trade, to write, to build with stone.

V. *The Steppe and the Sown.* 161 pp.
Warlike man tamed the horse, and—riding—began to raid his peaceful neighbors.

CERTAIN MUSEUM BOOKLETS

Recent helpful publications of the American Museum of Natural History, issued prior to 1928, are here listed:

Signs Along the Trail. By William H. Carr. 29 pp. American Museum ---------- $ .10
A guidebook to the nature trails of the Palisade Interstate Park; a model for "nature trails" elsewhere.

Meteorites, Meteors, and Shooting Stars. By Frederic A. Lucas. 24 pp. American Museum ---------- .15
First, their astronomy; second, their physics and chemistry; then much history and fine photographs.

Our Common Butterflies. By F. E. Watson and F. E. Lutz. 21 pp. American Museum ---------- .15
Descriptive, illustrated, with month-by-month table of life histories.

The Art of the Lapidary. By Herbert P. Whitlock. 29 pp. American Museum ---------- .15
A clear story of the science and art of cutting and polishing gems.

Mastodons and Mammoths of North America. By Henry Fairfield Osborn. 46 pp. American Museum ---------- .20
Interesting, scientific descriptions of American "finds."

The Story of the Minerals. By Herbert P. Whitlock. 144 pp. American Museum ---------- .75
Answering questions concerning crystals, chemicals, and curiosities of the mineral collections.

A Manual of Bird Study. By William H. Carr. 76 pp. Amercian Museum ---------- .75
Detailed descriptions and illustrations of twenty-five familiar birds.

A NEW ENCYCLOPEDIA

The Book of Rural Life. Edited by Edward M. Tuttle. 10 volumes, 6210 pp. Bellows ---------- $69.50
Contains 8,500 topics by 250 authorities, lavishly illustrated. Far broader than a mere "agricultural encyclopedia," it refers to all aspects of today's living. One of the bigger, better reference books. Particularly adapted to school use and the constant needs of science students.

EVALUATION OF CERTAIN PLANS OF FINANCING EDUCATION IN SOUTH CAROLINA

W. W. CARPENTER and L. EUGENE FLOWERS
University of Missouri

There is great variation in the amounts of money appropriated by the different states for their public schools. In 1926-27 the state of Delaware appropriated a total of $2,400,000 for its 33,869 pupils in average daily attendance in elementary and secondary schools.[1] This was equivalent to $70.86 per pupil in average daily attendance. Twenty-eight other states exceeded South Carolina in the total amount appropriated when calculated on this basis. In 1926-27 South Carolina appropriated a total of $3,666,442.36 for 337,421 pupils, or an amount equivalent to $10.87 per pupil in average daily attendance.[2] As a state, then, South Carolina is not doing as much for the education of its children as the majority of the states when its contribution is measured in terms of the amounts appropriated per pupil in average daily attendance.

The purpose of this study is not to compare the efficiency of education in South Carolina with that of other states. The purpose is rather to evaluate certain of the financial plans used in the state of South Carolina.

In 1924 a law was passed by the General Assembly of South Carolina providing that the state pay the salaries of all teachers for six months on the condition that either the county or district provide at least an additional month.[3] This was known as the 6-0-1 law. The six represents the teacher-salary contribution of the state, the next figure the county's contribution, and the last figure the district's. The law states, however, that either the county or the district may finance the additional month or months.

For this study schools are selected that have a full nine-month term, three months being furnished by either the county or the district or by some combination of these. There are four plans for nine-month schools—the 6-3-0, where the state furnishes six months and the county three; the 6-2-1, where the state furnishes six months, the

[1] Cramer, Roscoe V.: Unpublished report, University of Missouri, "How the States Have Financed Elementary and Secondary Education," 1929.
[2] "Report of State Superintendent of Education," 1927, pp. 4, 5.
[3] "South Carolina School Law," 1924, p. 87ff.

county two, and the district one; the 6-1-2, where the state furnishes six months, the county one, and the district two; and the 6-0-3, where the state furnishes six months, the county no months, and the district three.

The number of counties in South Carolina using the different plans in 1928-29 follows:

Plans	*Number*
6–3–0	8
6–2–1	2
6–1–2	5
6–0–3	31

The question arises: Which plan of furnishing the teacher-salary for the three months not provided by the state is most efficient? The following measures of efficiency were selected:

1. Average number of days that each child enrolled was in school.
2. Per cent that average daily attendance in high school was of the entire school.
3. Per cent that boys in average daily attendance in high school was of girls, or vice versa.
4. Average annual expenditure per child enrolled.
5. Average annual expenditure per child in average daily attendance.
6. Average monthly expenditure per teacher employed.
7. Average annual expenditure per pupil in average daily attendance for other than teacher-salary.
8. Average monthly expenditure per teacher for salary.[4]

Twenty nine-month schools were selected from the major geographic divisions of the state and arranged in four groups of five schools each according to the plan used in their respective counties of raising teacher-salary for the three months not furnished by the state. The mean annual expenditure between July 1, 1924, and June 30, 1927, of the schools composing each group was approximately the same.

A comparison of the groups of schools financed under the various plans and of the schools of the state as a whole, made on the basis of the mean scores of the groups in answer to each of the questions above, reveals the rank of each plan of providing teacher-salary. This comparison is presented in a condensed form in Table I.

EXPLANATION OF TABLE

1. The average number of days attended by each child enrolled in the public schools of South Carolina in 1926-27 was 125.98; in the schools selected to compose the 6-3-0 group, 132.16 days; in the 6-0-3

[4]Ayers, L. P.: "An Index Number for State School Systems," p. 11.

group, 132.88 days; in the 6-2-1 group, 135.85 days; in the 6-1-2 group, 139.59 days. Therefore, the 6-1-2 group ranks first on this point; the 6-2-1 group, second; the 6-0-3 group, third; and the 6-3-0 group, fourth.

2. The 6-2-1 group led in the per cent that average daily attendance in high school was of average daily attendance in the entire school, with 34.29; the 6-2-1 group came second, with 29.90; the 6-3-0 group, third, with 24.82; and the 6-3-0, fourth, with 23.60. These figures are

TABLE I

COMPARISON OF THE SCHOOLS OF THE STATE AS A WHOLE AND THE SCHOOLS COMPOSING THE GROUPS FINANCED UNDER EACH PLAN

Item	*South Carolina*	*6-0-3 Plan*	*6-1-2 Plan*	*6-2-1 Plan*	*6-3-0 Plan*
1. Average days attended	125.98	132.88	139.58	135.85	132.16
2. Per cent that average daily attendance in high school was of entire school	13.62*	23.60	25.91	34.29	25.50
3. Per cent that boys were of girls, or vice versa, in average daily attendance in high school	79.88*	73.96	74.96	88.10	76.28
4. Average annual expenditure per child enrolled	$ 60.25	$ 59.92	$ 74.34	$ 81.55	$ 56.71
5. Average annual expenditure per child in average daily attendance	81.78	73.99	95.98	105.86	78.14
6. Average monthly expenditure per teacher employed	142.64	152.26	155.30	195.15	141.75
7. Average annual expenditure per child in average daily attendance for other than teacher salary	33.58	34.96	35.20	48.39	36.90
8. Average monthly expenditure per teacher for salary	78.30	88.15	93.60	89.38	86.43

*Computed on basis of enrollment. Average daily attendance could not be secured.

Read the table as follows: Each white child enrolled in public schools in South Carolina in 1926-27 attended an average of 125.98 days. Average daily attendance in high school was 13.62* per cent of total average daily attendance. There were 79.88* per cent boys as girls in average daily attendance. Average annual expenditure per child enrolled was $60.25; average annual expenditure per child in average daily attendance was $81.78; average monthly expenditure for all purposes per teacher employed was $142.64; average annual expenditure per pupil in average daily attendance for other than teacher-salary was $33.58. The average monthly expenditure per teacher for salary in South Carolina in 1926-27 was $78.30.

Items 4, 5, and 7 in the columns headed by the various plans have reference to "average annual expenditure" during the period from July 1, 1924, to June 30, 1927. Otherwise they are read just as the column headed "South Carolina."

Figures in the columns headed by the various plans are the means of the schools composing the groups financed under the different plans.

This tabulation is based on records on file in the State Department of Education and on replies to questionnaires from officials of the institutions considered in this study.

not comparable with 13.63 per cent given for the entire state, since the latter was computed on the basis of enrollment instead of average daily attendance.

3. The 6-2-1 group led in the per cent that boys were of girls, or vice versa, in average daily attendance in high school, with 88.11. In two of the five schools composing this group the average daily attendance of the boys exceded that of the girls. The 6-3-0 group came second, with 78.03. There were more boys than girls in average daily attendance in one of the schools in this group. The 6-1-2 group came third, with 74.98, and the 6-0-3 group came fourth, with 73.50. Since the 79.88 given for the state was computed on basis of enrollment, it is not comparable with the figures given for the groups.

4. Only the 6-0-3 group, with an average annual expenditure of $59.92 per child enrolled, fell below the average of $60.25 for the state. The 6-3-0 group came next to the bottom, with $56.71; the 6-1-2 group next, with $74.34; and the 6-2-1 group top, with an annual expenditure of $81.58 per child enrolled.

5. Both the 6-0-3 group, with $73.99, and the 6-3-0 group, with $78.14, fell below the average of $81.76 for the state in average annual expenditure per child in average daily attendance. The 6-1-2 group came first above the average for the state, with $95.98, and the 6-2-1 group led, with $105.86.

6. The 6-0-3 group, with $141.75, is the only one that fell below the state's average of $142.64 in average monthly expenditure per teacher employed. The 6-0-3 group, with $152.25, came next above the average for the state. The 6-1-2 group came third, with $155.30, and the 6-2-1 group led, with $195.15.

7. The average amount spent per pupil in average daily attendance in the public schools of South Carolina in 1926-27 for other than teacher-salary was $33.58. The 6-0-3 group did just a little more than the average for the state in spending $34.96. The 6-1-2 group came next, with $35.20; the 6-3-0 group next, with $36.90; and the 6-2-1 group led, with $48.39.

8. Each group of schools considered in this study averaged spending more per teacher for salary each month than did the state as a whole, which was only $78.30. The 6-0-3 group came nearest to the average for the state, with $86.43. The 6-0-3 group had a little better average, $88.15. The 6-2-1 group came next, spending $89.38 for this purpose, and the 6-1-2 group led, with $93.60.

Arranging the plans of financing the public schools of South Carolina according to the rank of the means of the eight criteria reveals that the 6-2-1 plan ranks first; the 6-1-2 plan, second; the 6-3-0 plan, third; and the 6-0-3 plan, fourth. Table II shows the rank of the answer to each question and the rank of the plans.

TABLE II

RANK OF THE ANSWERS TO THE QUESTIONS AND THE RANK OF THE PLANS

QUESTIONS	PLANS			
	6-0-3	6-1-2	6-2-1	6-3-0
	Rank of the Answers			
1. Average days attended	3	1	2	4
2. Per cent that high school average daily attendance was of total average daily attendance	4	2	1	3
3. Per cent that boys were of girls, or vice versa, in average daily attendance in high school	4	3	1	2
4. Average annual expenditure per child enrolled	3	2	1	4
5. Average annual expenditure per child in average daily attendance	4	2	1	3
6. Average monthly expenditure per teacher employed	3	2	1	4
7. Average annual expenditure per pupil in average daily attendance for other than teacher salary	4	3	1	2
8. Average monthly expenditure per teacher for salary	3	1	2	4
Rank of the Plans	4	2	1	3

Read the table as follows: The 6-0-3 plan ranks third among the plans in the average number of days that each child enrolled attended school; fourth in the per cent that boys were of girls, or vice versa, in average daily attendance in high school; third in average annual expenditure per child enrolled; fourth in average annual expenditure per child in average daily attendance; third in average monthly expenditure per teacher employed; fourth in average annual expenditure per pupil in average daily attendance for other than teacher-salary; third in average monthly expenditure per teacher for salary. It ranks fourth among the plans. The tabulation is based on Table I.

CONCLUSION

To the extent that the measures used are reliable, it may be said that participation by the local districts in the support of public schools is most desirable when that participation is kept at a minimum. The maximum participation by the local districts is worse than no participation.

TEACHING FORMAL DETAILS OF ENGLISH BY MEANS OF PROBLEMS

BONNIE GILBERT
Chattanooga High School, Chattanooga, Tenn.

English teachers, regarded objectively, resemble a great fraternity of some kind of doctors having to build up a body of knowledge empirically while a whole populace, willy-nilly, serves as subjects for the experiments. But this to the credit of the English "doctors:" They are terribly in earnest, and hasten to tell each other any bits of truth they hit upon in their search for specifics.

It is as one of these high-school experimenters in the field of written composition that I am making this report. The plan I am explaining has yielded such satisfactory results for the last four years that I unhesitatingly pass it on. In brief, the plan consists of a "homemade" diagnostic test, seven or more drills, and a progress test, also homemade. Both tests are based on the cycle plan used by Mr. Thomas H. Briggs, of Columbia University, in his Alpha and Beta tests—his English Form Tests. In fact, it was by using these tests of his that I became interested in "problem" teaching.

I hasten to explain what any one would know—that a "homemade" test, however carefully made, has its imperfections, as I shall instance. But as standardized tests are expensive and even not to be had for certain details of composition, it behooves a teacher not to be too squeamish about making her own tests, trusting something as to weighting.

In September the teachers of the tenth and eleventh grades in our school agreed upon ten "essentials" for our first teaching "problem," using the tenth-grade composition book as our criterion. The details to be tested, drilled, and measured for progress were:

I. Capital letters—

1. Sections of the country, as East, West, etc.
2. No capitals for seasons of the year.
3. No capitals for points of the compass (directions).

II. Commas—

4. Direct address.
5. Introductory words or expressions.
6. Appositives.

7. Parenthetical words or groups of words.
8. Yes, no, as part of answers.
9. Short compound sentences.
10. Adjective clauses used non-restrictively.

No one of these details is new material to pupils of the tenth grade.

We constructed a diagnostic test, composed of thirty easy sentences, which permitted three opportunities for each of the ten details under study to be either right or wrong. The details occurred in the same order throughout.

The second part of the machinery for the "problem" consisted in constructing seven short exercises composed of sentences which employed only one use each of the details to be studied.

Finally, a "progress" test was constructed similar in form to the diagnostic test just explained.

A typewritten copy of the complete problem was then given each teacher taking part.

Dictation is the method we used. In spite of the fact that dictation as a method of teaching was shelved several years ago, much can be found in its favor when we take it down, dust it off, and employ it under conditions perhaps better than formerly. Dictation is economical, both as to time and energy, for pupil and for teacher, and its efficiency is obvious in the progress made by the pupils taking it.

Dictating the diagnostic test will take nearly the entire class period, as pupils are usually slow at first with dictation.

The next day we distributed these papers, and by pupils' copying the numbers of the "rules," which were written out on the board in the order used in the test, pupils could score their papers under teacher direction. In case of an error they merely placed a tally against the number (they had copied these numbers from the board) standing for the rule. In every instance I know, pupils are just as earnest as the teacher for having correct scoring. Only errors under study should, of course, be taken into consideration in the scoring. Pupils are interested in the fact that they can make only a certain number of mistakes on any one rule. They are also impressed by the fact that they have made so many errors in using rules they have studied, in several instances, since the seventh grade. This is anything but a dull class period.

It is a good thing to seize their quickened interest and discuss the rules all they like and to explain the proposed undertaking, letting them feel that you are on their side in bettering the present situation. Occasionally there will be a pupil who will not need the drill, if we

take the diagnostic test as the only criterion. In my own five classes I found two pupils who, according to the test, did not need further teaching of these details. However, since the test provided only three opportunities each, I did not place too much weight upon that fact. The drills and final test, however, bore out the fact that they did not need the extra work. Such pupils are rare.

To return to the process. The next day the pupils "pick up" when the teacher asks them to get ready their paper and pencils with some such remark as: "We are going to have a chance to make perfect on those 'rules' we had yesterday." It is easy to see that they intend to make perfect, too.

At the close of the dictation, which is the first of the drill exercises. pupils place the numbers one to ten, representing the rules, in the same order as on the board. These should be put at the top or bottom of their exercise horizontally and the papers scored by these, as in the diagnostic test. In the drills the "rules" occur at random; so care has to be exercised to score correctly.

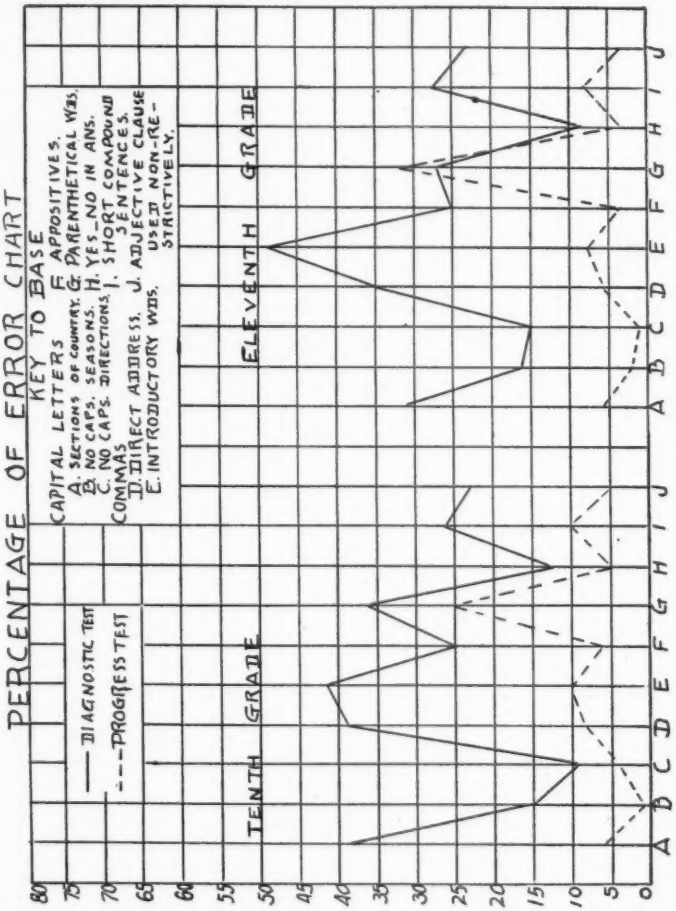
The other drills may be given on consecutive days or not. We try to give at least two drills each week.

Pupils may keep a record of their individual errors by placing the numbers standing for the rules in the same order as for the test. A pupil in this experiment suggested that the class do that. Together we quickly designed on the board a form showing a column for, first, the diagnostic test, one for each of the seven drills, and one for the progress test.

This test, the progress test, is given at the finish of the seven drills. My classes showed keen interest in this, although they did not know it was a final test. I merely announced that they were to be given eleven sentences that day. Each of these sentences contained two or more uses of the "rules" under study. This meant that the progress test was, perhaps, more difficult than either the diagnostic test or any of the drills. At that, the classes, without exception, showed remarkable improvement. In order to show the pupils at once their status, I graphed for each class the two tests. They were pleased with their evident progress.

When each teacher had finished with the "problem," each submitted her figures tabulated according to a previous agreement. We combined these by grades.

The combined results of the last test [see graph] showed that, as compared with the diagnostic test, the classes had made improvement in every detail, with the exception shown by the eleventh grade, who raised their percentage of error seven points, although the tenth grade on the same detail lowered their percentage of error six points.


PERCENTAGE OF ERROR CHART
KEY TO BASE
CAPITAL LETTERS
A. SECTIONS OF COUNTRY. B. NO CAPS. SEASONS. C. NO CAPS. DIRECTIONS.
COMMAS
D. DIRECT ADDRESS. E. INTRODUCTORY WDS.
F. APPOSITIVES. G. PARENTHETICAL WDS. H. YES—NO IN ANS. I. SHORT COMPOUND SENTENCES. J. ADJECTIVE CLAUSE USED NON-RESTRICTIVELY.
— DIAGNOSTIC TEST
--- PROGRESS TEST
TENTH GRADE
ELEVENTH GRADE
A B C D E F G H I J
80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0

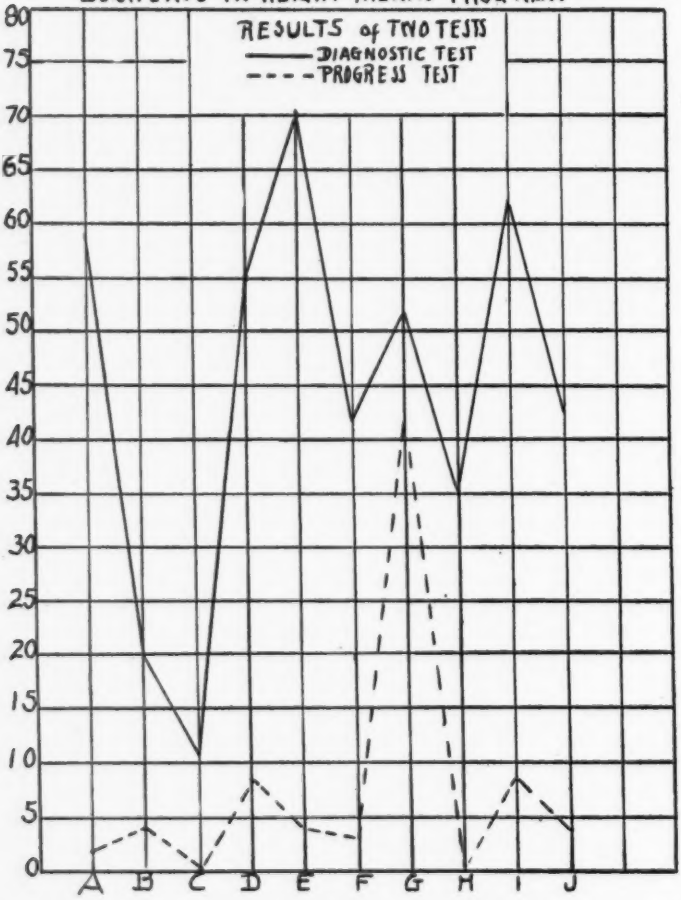
Both grades showed greatest improvement in the uses of the comma for introductory words and for terms of direct address. The first test showed these two "rules" to be almost ignored by the pupils. However, the amount of attention they received in the problem was no more than that given the other details.

All classes concerned in the experiment made numerous errors with the parenthetical word "perhaps" in this sentence in the progress test: "Mother, yes, I will go to Mary's, and, perhaps, she will come back with me." That sentence had four of the "rules" in it. The teachers discussed the sentence before admitting it to the test, but we agreed to try it. The pupils throughout the classes overlooked the parenthetical use of "perhaps."

PERCENTAGE OF ERROR

CHART FOR TWELFTH GRADE CLASS IN A TEST-DRILL-TEST PROBLEM.

DECREASE IN HEIGHT MEANS PROGRESS



THE LETTERS STAND FOR THE DETAILS OF THE DRILL IN ORDER.

We draw these conclusions from our experience with this "problem:"

That drill on uses of punctuation marks and capital letters produces great improvement.

That the eleventh grade needs as much teaching of these details as the tenth grade.

That "problem" teaching is vitalizing to both pupils and teachers.

That "problem" teaching is an objective way of proving to pupils their needs and their progress. This inspires their confidence.

We are at present engaged in teaching the uses of the apostrophe of possession by this problem method, and expect to take up still another upon the completion of that. We also plan to repeat these problems near the close of the year.

We, too, belong to the fraternity of English composition "doctors," and it is with a degree of confidence that we offer this specific as our bit toward curing high-school composition ills.

A CATALOGUE STUDY OF THE FACULTY OF A STATE TEACHER-TRAINING INSTITUTION

HERBERT KIMMEL
North Carolina College for Women

An examination of the first thirteen annual catalogues of one of the state teacher-training institutions of the Middle West reveals some interesting facts concerning its faculty.[1] These facts are of interest not so much because of their local significance as because of their more general bearing, for this particular institution is without doubt more or less typical of that class of state institutions of which it is a representative.

Although this institution opened with a faculty of only fourteen members and has had at no time one to exceed sixty-one members, it has had such a turnover in the personnel of its faculty that already one hundred forty-four different people have been connected with it as faculty members. In other words, eighty-three of these one hundred forty-four people have severed connections with the institution.

Table I presents in detail these facts and others related to them.

An analysis of Table I discloses at least two significant facts in addition to those already emphasized. In the first place, it shows that the

TABLE I

Year	*Number of Faculty Carried Over from Previous Year*	*Number of Faculty Added at Beginning of Year*	*Number of Faculty Employed During Year*	*Number of Faculty Withdrawn at End of Year*
1914–1915	0	14	14	2
1915–1916	12	12	24	2
1916–1917	22	10	32	7
1917–1918	25	4	29	7
1918–1919	22	8½*	30½*	10½*
1919–1920	20	11	31	8
1920–1921	23	7	30	6
1921–1922	24	8	32	4
1922–1923	28	9	37	5
1923–1924	32	15	47	7
1924–1925	40	9	49	11
1925–1926	38	21½*	59½*	11½*
1926–1927†	48	13	61	0

*A member of the faculty severing connection with the institution or beginning services with it at the middle of the year is regarded in the above table as a half faculty member.

†The annual catalogue of this institution for the year 1926-1927 did not come from the press until the second semester of the year 1927-1928.

[1]The term "faculty" in this study includes the president, instructors, and librarians.

faculty has increased to more than three times its original size, and, in the second place, it indicates that this increase has not been uniform.

Table I does not reveal at what time during his connection with this institution a member of its faculty has been most liable to discontinue relations with it.

Table II does, however, and may be interpreted in the following manner: Of the fourteen members of the faculty for the year 1914-1915, twelve remained for the year 1915-1916, twelve for the year 1916-1917, twelve for the year 1917-1918, ten for the year 1918-1919, etc.; and of the twelve members added for the year 1915-1916, ten remained for the year 1916-1917, eight for the year 1917-1918, six for the year 1918-1919, etc.

TABLE II

WHAT MEMBERS LEAVE

Number of Members of Faculty in Each Year													*Year of Election*
1914 to 1915	*1915 to 1916*	*1916 to 1917*	*1917 to 1918*	*1918 to 1919*	*1919 to 1920*	*1920 to 1921*	*1921 to 1922*	*1922 to 1923*	*1923 to 1924*	*1924 to 1925*	*1925 to 1926*	*1926 to 1927*	
14	12	12	12	10	8	5	5	5	5	5	5	5	elected 1914–1915
	12	10	8	6	5	4	4	4	3	3	3	3	elected 1915–1916
		10	5	3	1	0	0	0	0	0	0	0	elected 1916–1917
			4	3	0	0	0	0	0	0	0	0	elected 1917–1918
				8½*	6	6	6	6	6	5	5	4	elected 1918–1919
					11	8	2	2	2	2	2	2	elected 1919–1920
						7	7	7	6	4	4	4	elected 1920–1921
							8	4	3	2	1	1	elected 1921–1922
								9†	7	5½*	0	0	elected 1922–1923
									15	13	13	9	elected 1923–1924
										9½	5	3	elected 1924–1925
											21½*	17	elected 1925–1926
												13	elected 1926–1927
14	24	32	29	30½*	31	30	32	37	47	49	59½	61	Total number, each year.

*See Table I.

†Two members elected at the middle of this year left at the end of it.

The most outstanding fact disclosed by Table II is that the longer an individual has been a member of the faculty of this teacher-training institution the more likely he is to continue his services with it. This fact is clearly shown by the following tabulations:

Of 131 members elected during 1st 12 years and remaining 1 year, 35 left at end of 1st year.
Of 79 members elected during 1st 11 years and remaining 2 years, 18 left at end of 2nd year.
Of 58 members elected during 1st 10 years and remaining 3 years, 15 left at end of 3rd year.
Of 34 members elected during 1st 9 years and remaining 4 years, 6 left at end of 4th year.
Of 28 members elected during 1st 8 years and remaining 5 years, 3 left at end of 5th year.
Of 24 members elected during 1st 7 years and remaining 6 years, 4 left at end of 6th year.
Of 16 members elected during 1st 6 years and remaining 7 years, 0 left at end of 7th year.
Of 14 members elected during 1st 5 years and remaining 8 years, 2 left at end of 8th year.
Of 8 members elected during 1st 4 years and remaining 9 years, 0 left at end of 9th year.
Of 8 members elected during 1st 3 years and remaining 10 years, 0 left at end of 10th year.
Of 8 members elected during 1st 2 years and remaining 11 years, 0 left at end of 11th year.
Of 5 members elected during 1st 1 year and remaining 12 years, 0 left at end of 12th year.

Of the eighty-three people who have left the institution, sixty-eight, or eighty-two per cent, have done so by the end of their third year. Only two instructors have left the institution after having served it for as many as seven years. These two left at the end of their eighth year.

Of the one hundred forty-four people who have been members of the faculty of this teachers college, fifty-one have been men and ninety-three have been women. Twenty-seven of these fifty-one men and fifty-six of these ninety-three women had left the institution before its thirteenth year.

Had there been no withdrawals from the faculty of this college during its thirteen years of existence, the average number of years of service rendered it would have been 7.83. As it is, however, the average number of years of service rendered by its faculty has been only 3.33.

The average number of years of service given by each of the sexes has been as follows:

By men	4.46
By women	2.73

The average number of years of service given by the various groups of women has been as follows:

By 36 training-school critic teachers	2.22*
By 7 city critic teachers	2.00
By 6 rural critic teachers	3.17
By 44 other women	3.15

*With a possibility of an average of 11.14 years, the training-school critics have attained an average of only 2.22 years.

If the above facts are typical of this particular kind of educational institution and a longer tenure is desirable, then, everything else being equal between men on the one hand and women on the other, the former are to be preferred as faculty members.

An examination of these first thirteen annual catalogues of this institution reveals some interesting facts with regard to the distribution of the various earned degrees of the different members of the faculty for each of the thirteen years. This distribution is shown by Table III.

A careful study of Table III shows but little, if any, increase in the average training of the faculty members of this college over this period of time.

TABLE III

THE HIGHEST DEGREE HELD BY MEMBERS OF THE FACULTY

	Ph.D. Degree	*Master's Degree*	*Bachelor's Degree*	*No Degree*
1914–1915	0	5	5	4
1915–1916	0	9	9	6
1916–1917	0	11	14	7
1917–1918	1	10	12	6
1918–1919	0	14	13	4
1919–1920	0	16	7	8
1920–1921	1	12	10	7
1921–1922	1	11	12	8
1922–1923	1	12	12	13
1923–1924	2	15	17	13
1924–1925	2	18	18	12
1925–1926	3	21	21	15
1926–1927	5	19	20	17

The average number of years of service rendered by each of the different degree groups, and by the men and women respectively in each of these groups, during these first thirteen years is as follows:

By 6 with doctor's degrees ..... 2.67 { 4 men ..... 3.50 / 2 women 1.00
By 41 with master's degrees only ..... 4.24 { 27 men ..... 4.48 / 14 women 3.79
By 56 with bachelor's degrees only ..... 2.95 { 21 men ..... 3.95 / 35 women 2.35
By 50 without degrees ..... 2.32 { 3 men ..... 3.17 / 49 women 2.27

With the exception of the six people possessing doctor's degrees, the above tabulation indicates that the greater the training the longer the tenure.

A further study of these catalogues shows that seven people possessing, to begin with, a bachelor's degree only have had a master's degree conferred upon them, and two possessing no degree at first have had a bachelor's degree conferred upon them while connected with this institution. It also reveals that six different members of this faculty have been absent on leave at one time or another. The aggregate amount of time thus spent, however, totals only five years.

The one hundred seven bachelor's degrees possessed by the members of this institution's faculty have been granted by fifty different colleges and universities, located in nineteen different states. Of these one hundred seven degrees, thirty-six have been granted by colleges and universities within the confines of the state in which this state teachers college is located.

The forty-seven master's degrees possessed by the members of this college faculty have been conferred by nineteen different universities

and colleges scattered throughout eleven states. Seventeen of these master's degrees have been granted by Columbia University, six by the University of Chicago, three each by the University of Illinois, the University of Michigan, and Ohio State University, and one each by fifteen other institutions. Five of these last fifteen universities and colleges are located in the state in which this institution for the training of teachers is situated.

The six doctor's degrees have been conferred upon those who possess them by four universities—Columbia, Cornell, New York, and Ohio State. Cornell and Ohio State have conferred two each.

With but few exceptions, the degrees of the members of the faculty of this teachers college are from reputable institutions of learning. They compare favorably with the degrees of the members of the faculties of the average liberal arts colleges of the region in which this institution is situated.

The instructors of the institution are ranked either as heads of departments or as instructors. This seems to the writer to be a most unfortunate method of classification. The range in qualifications, experience, and responsibility of the members of this faculty justify a method of ranking them that possesses a greater degree of discrimination than does the one in use.

EDITORIALS

TWO FORCES

Practically every department of public education had its original impulse in New England, particularly in Massachusetts. The first attempt at school legislation occurred there. The first college was established there, as were the first elementary school, the first high school, and the first normal school. Also, it took America's foremost philosopher and prophet, Benjamin Franklin, to beat Massachusetts to the first academy. Massachusetts in its earlier days might have been called very appropriately "The Missionary of Public Education to the Western World."

In due course the Massachusetts influence spread Southward, and in 1875 resulted in the establishment of Peabody College. Concretely, George Peabody, of Massachusetts, gave the means. Robert C. Winthrop, of Massachusetts, was the first chairman of the board which administered the means so provided. Barnas Sears, of Massachusetts, was the first general agent of this board. Eben Stearns, of Massachusetts, was the first president of Peabody. Julia Sears and Emma Cutter, both of Massachusetts, were the first teachers employed for service in Peabody. Here was an educational sturdiness, an educational vision, a consecration to educational ideals; and sturdiness, vision, and consecration are the qualities of pioneers everywhere. There is no finer picture in the history of American education than that of Massachusetts, the missionary and pioneer of public education, carrying its gospel to other sections. There is no touch of condescension in the picture. The zeal of a righteous cause, and that according to knowledge!

That zeal in Peabody College met with another force equally as beneficent in the development of the nation, Southern graciousness and chivalry. Peabody is a Southern college. Its architecture is Southern, magnolias bloom on its campus, the conversation one hears is redolent of that delicious softness which marks Southern speech.

In 1875, Peabody opened and admitted thirteen students. Before the year closed the registration had increased to forty, all from the South. Five years later, 153 students were enrolled. All were from the South, ten states being represented. Of the 689 students enrolled in 1908-09, all but three were from Southern states. In this time it had trained a group of outstanding leaders in whom were consolidated

the gentility of the South and the zeal of Massachusetts. These were the nucleii around whom were gathered all of the factors belonging in the South's new educational order. For instance: Miss Lizzie Bloomstein, J. L. Long, Frank Evans, T. J. Woofter, Jasper Deahl, Wickliffe Rose, Charles Edgar Little, J. W. Brister, I. N. Wampler, W. K. Tate, J. B. Aswell, Albert A. Murphree, C. J. Heatwole, H. H. J. Fling, Henry E. Bennett, E. C. Branson, Fannie W. Dunn, Eugene Tavenner, W. F. Bond, T. K. Sisk, J. H. Workman, Macon Leiper. There were others, hundreds of others, but these come immediately to mind.

With its reorganization, Peabody became, if not less Southern, more national. In the summer of 1928 it registered 2,912 students, from thirty-four states and five foreign countries. Of these students, 2,762 were Southern. In the strength provided by this heritage of grit and grace Peabody goes marching on.

CONCERNING THAT NEW $250,000 BUILDING

The tendency in modern references to the physical equipment of schools to make adjectives of the various expenditures is of curious significance. Educational news and advertising teem with statements distinctively reflective of this era of high-powered commercialism—"The new $200,000 Administration Building will be ready for the fall quarter." "The $150,000 library will be among the finest in the South." "Physical Education and Athletics will move into the $100,000 gymnasium at the opening of the year." "This is a picture of our new $200,000 Training School." "The new $250,000 dormitory is rapidly nearing completion"—and so on, and on, and on.

This lack of financial modesty has been apparent for some time among the commercial advertisers. They do not hesitate—in fact, they are rather eager—to announce the huge expenditures which they make to provide for the manufacture of their products—light airy quarters, sanitary conditions, machines of great power and precision. And so, those who distribute educational news and write college advertising have reasoned that if a ten-million-dollar cereal plant will produce more desirable breakfast food, likewise a ten-million-dollar college plant will produce more desirable graduates. Somehow, the logic doesn't ring quite true.

But, at any rate, the matter could be worse—as, for instance: "The new $15,000 president of Siwash will be inaugurated in October;" or,

"Oxvard's $10,000 Professor of Education has contracted to address the graduate students of Vanderlane Tech at $1.00 a word;" or, "Dr. Binks, the $8,750 Professor of Dead and Dying Languages, spoke at chapel Monday wearing his new $135 suit."

TOO LATE

The commercial artist who, in 1926, first brought girls into cigarette advertising has just died. This would have been a timely event of 1925.

THE NEW BOOKS ON OUR SHELF

[The reviews, most of them signed, are by appropriate members of the Faculty of GEORGE PEABODY COLLEGE FOR TEACHERS. Our limited space necessitates concise notices—brief, pointed, thoughtful comments, without elaboration.]

Democracy and Mission Education in Korea. By JAMES EARNEST FISHER. New York: Bureau of Publications, Teachers College, Columbia University, 1928. Pp. xiii + 187.

The purpose of this study is "to examine some of the aims and activities of the complex enterprise, which is designated as 'Mission Education in Korea,' in the light of a democratic philosophy of education," hoping thereby "to give a constructive criticism which may be of some help to those faithful teachers and educators who have already done so much toward improving this education and making it the valuable instrument of human betterment which it is today." The study, based upon first-hand observations and personal contacts as Professor of Education in Chosen Christian College, Seoul, Korea, appears to be thoroughly sound and practicable rather than visionary and theoretical. The problem is open-mindedly considered—(1) by drawing up criteria of democratic education; (2) by reconstructing the aims of mission education; (3) by studying the relation of mission education to governmental control of education; and (4) by studying the relation of mission education to life problems of the Korean people, this fourth aspect being especially valuable. As a result of the study, three guiding principles for mission education in adjusting to the new conditions are suggested: (1) Must be more scientific, especially in view of the erstwhile "authoritarian position in religion." "Dogmatic, unscientific, and obscurantist missionaries may, of course, stay in Korea and work for many years, but their appeal will be only to the ignorant and superstitious classes, and the sphere of their influence will become even smaller as modern education becomes general throughout the country." (2) Must be more human, by which is meant that "we must recognize as legitimate and valuable many of the natural and spontaneous desires and activities of human beings which have been condemned by some of the moralists who still adhere to puritanical standards." (3) Must be more educational, as, for example, "by permitting and encouraging greater freedom of discussion among students on controversial issues." The study is typical of the modern trend in missionary endeavor.

L. W. C.

Sir Henry Clinton Maps. By RANDOLPH G. ADAMS. Ann Arbor: The William Clements Library, 1928. Pp. 144. Price, $1.50.

This brochure is a list of titles, with descriptions, of 350 maps used by Sir Henry Clinton, in command of British forces in North America in the Revolutionary War, 1775-1782. These maps, with printed documents relating thereto, are in the William Clements Library of the University of Michigan. The library has done a most excellent service for history and historical geography in assembling of these maps, many of which had to be pieced together and mounted from mere fragments. The maps cover most of the Eastern Coast of North America from Nova Scotia to Georgia.

A. E. P.

The Growth of Teachers in Service. By F. L. WHITNEY. The Century Co., New York, 1927. (Century Education Series.) Pp. xxxix + 308.

The subtitle, "A Manual for the Inexperienced Superintendent of Schools," more accurately than the title expresses the purpose of the text, which is organized for classroom use. Each chapter ends with supervisory projects and problems, with annotated references. The book is suitable for a text in undergraduate course in administration, where discussion and readings will supplement the text. There is room for a book of the same title, addressed to teachers in service, and not to the superintendent or other supervisory agency. R. L. HUNT.

Essentials of Civilization. A Study in Social Values. By THOMAS JESSE JONES, Educational Director, Phelps-Stokes Fund. Henry Holt & Co., 1929. Pp. 264. Price, $2.50.

This book represents a sincere and intelligent search for the vital elements of human group coherence and welfare. Assuming these elements to be health and sanitation, the comprehension and appreciation of the environment, the transfer of the race's heritage, physical and mental re-creation, and recreation, the author discusses the reaction of each upon the six general types of organization which the human group has achieved—namely, governmental, industrial, educational, religious, philanthropic, and art. The *Essentials of Civilization* is a hopeful book. It presents none of the somber implications all too common in studies which look closely into the strength and diseases of civilization. It is a hopeful book, because it believes that there is a unity tending ultimately to dissolve those confusions and complexities which are inevitable concomitants of the earlier stages of human progress. To the hopeful quality of the book this sentence eloquently testifies: "Though the unification of modern society is a huge undertaking, involving many diverse conditions and forces and requiring substantial periods of time, participation in the processes for the realization of unity is possible to every citizen who is willing to do his daily task, whatever it may be, as for the ideals of civilization." A. L. C.

New Civic Biology. By GEORGE WILLIAM HUNTER (Knox College, Galesburg, Ill.). New York: American Book Co., 1926. Pp. xii + 448.

This revised edition of an old favorite high-school textbook retains most of the merits of the earlier edition, with certain desirable modifications. The problem method is retained, with problem questions and problem and project references. There is no discussion of evolution. This probably makes the book better suited to the conditions of our Southern high schools. The book appears remarkably free from slips. Yet we read on page 288 that "the government inspects all animals killed for food in large slaughterhouses, so that there is little likelihood nowadays of becoming infested with trichina," in spite of the fact that all recent publications from the Bureau of Animal Industry (under whose supervision this work is done) dealing with inspection work state definitely that inspection for trichina has long been discontinued. J. M. S.

Mother Goose Book. By EMMA M. BOLENIUS and MARION G. KELLOGG. Boston: Houghton Mifflin Co., 1929. Pp. 128. Price, 68 cents.

Another one! Yes, but a new one—only the words are old. A work-and-play book for silent reading, with all sorts of clever things to do about it. And—tee-hee—those funny pictures, just made for youngsters to giggle over, even if it is in school.

The Problem Child at Home. By MARY BUELL SAYLES. New York: The Commonwealth Fund Division of Publications, 1928. Pp. x + 342. Price, $1.50.

This is a rather popular presentation of the child-parent relationships, particularly from the standpoint of maladjustments as seen from the records of the child guidance clinics. The author has extracted from the formidable documents accumulated in the clinic the valuable information which may be drawn from the experience of fathers and mothers whose children have come into the clinics, and she has presented this information in a manner that would seem most helpful to other parents who are confronted with similar problems in the bringing up of their children. The first two parts of the book deal with the general facts and principles involved in the parent-child relationships as seen from the records of the clinics, and many mistaken ideas of parents are dealt with by the author. These discussions will be valuable to parents even if authorities would not agree completely as to the correctness of the author's several interpretations. The last part of the book is devoted to narratives of cases which have been carried through the treatment period. These cases are again selected, of course, and reflect a special point of view; but they will doubtless be very suggestive and helpful to parents who have problems on which they need help. J. P.

Education for World Citizenship. By WILLIAM G. CARR. Stanford University: Stanford University Press, 1928. Pp. ix + 225. Price, $2.50.

The book is more of an outline indicating the type of education needed to bring about a more sympathetic understanding of world problems than a book furnishing the content material for such a study. A selected bibliography is given at the end of each chapter. O. C. A.

School Building Programs in American Cities. By N. L. ENGLEHARDT. New York: Bureau of Publications, Teachers College, 1928. Pp. xxv + 560. Price, $5.

This volume consists of ten chapters setting forth the condition of school buildings, and their needs, of ten cities and towns, as determined by surveys made under the direction of Dr. George D. Strayer and the author, with the coöperation of many individuals. The numerous tables, illustrations, and maps will be useful for students of school-building needs, and for those who are making a comparative study of school administration. F. B. D.

Algebra for Secondary Schools. By STEPHEN EMERY and EVA E. JEFFS. New York: D. Van Nostrand Co., Inc., 1928. Pp. xii + 626. Price, $1.85.

A book built upon the problem. There are two sections, the first section having 3,019 problems and the second 8,625. Every teacher would delight in having a copy in his library for supplementary work in any course in algebra in the secondary school. The print is fine and on paper that is slightly transparent, which detracts materially. There are a good many problems of the mental gymnastics type, which are of no practical value. F. L. W.

Laboratory Experiments in Organic Chemistry. By ROGER ADAMS and JOHN R. JOHNSON. New York: The Macmillan Co., 1928. Pp. xii + 304.

"Opinions differ as to whether first-semester students should be offered numerous test-tube experiments, covering an extensive number of reactions, or comparatively few experiments, carried out so that the products are isolated and purified." The latter plan is followed in this manual. Descriptions are detailed.

H. A. W.

Modern Solid Geometry. By JOHN R. CLARK and ARTHUR S. OTIS. Yonkers: World Book Co., 1928. Pp. xix + 323, 461.

The essential difference from other texts is in the question form of putting the original exercises and the inclusion of tests by which the students may measure their progress. F. L. W.

Engines. By E. N. DA C. ANDRADE. New York: Harcourt, Brace & Co., 1928. Pp. xvi + 267.

Engines—all kinds, large and small, on foundations and on wheels, with flames inside and outside, ancient and modern, to interest boys of fifteen or men of seventy! Historical, scholarly, interesting, practical, all at once. A striking book! H. A. W.

Testing Intelligence and Achievement. By ALBERT J. LEVINE and LOUISA MARKS. New York: The Macmillan Co., 1928. Pp. viii + 399. Price, $2.

This book attempts the large task of presenting a brief outline not only of the testing movement as applied to intelligence, special aptitudes, and personality traits, but also of the measurement of achievement in the different school subjects. The numerous tests themselves are very briefly described and characterized, and a nine-page table summarizes the representative achievement tests, giving subject, name, brief description, grades for which designed, type of norm, and publisher of each test. Chapters are also devoted to the mentally defective, the neurotic, and the superior child. A critical attitude toward certain errors in testing procedures is shown, but it is unfortunate that in the short space of one volume something must be sacrificed. Certain of the tests described have been found to have very low reliability and validity—a fact which the untrained tester (for whom things must be so oversimplified) should know. Data of this sort should not have been omitted. There is no small amount of danger in putting important testing work into the hands of tyros who must depend upon such brief manuals for what thorough training should have given them. The book, however, is clear and intelligible. J. P.

The Questionnaire in Education. By LEONARD V. KOOS. New York: The Macmillan Co., 1928. Pp. 178.

A very interesting review of the use and place of the questionnaire method in scientific studies of education. One cannot but be impressed that the author has decided bias for the use of the questionnaire. The book, in fact, appears to be an answer to criticisms that have been made rather generally against this type of investigation. It contains a good analysis of the use which is being made of this method of investigation. The recommendations in the closing chapter should be helpful to the one undertaking this type of procedure. The greatest value of the book probably lies in its pointing the need for further studies to refine and improve the questionnaire as a scientific procedure. W. D. C.

Essays of Our Day. Edited by BERTHA EVANS WARD. New York: D. Appleton & Co., 1929. Pp. xvi + 412.

A pleasant book, aimed at pleasing high-school students. No Baconian heaviness, rather a lightness instead that is too obvious at times. Several of our modern essays which one must call "matchless"—Conrad's "Christmas Day at Sea," Galsworthy's "Burning Leaves," and Leacock's "A, B, and C"—are included. B. R.

The Fundamentals of Quantitative Analysis. By WALTER C. BLASDALES. New York: D. Van Nostrand Co., Inc., 1928. Pp. vi + 403. Price, $3.75.

A revision, adding to all chapters. Numerous practical determinations, as on foods. Adequate theory. H. A. W.

Short Plays from Great Stories. By ROLAND ENGLISH HARTLEY and CAROLINE MARGUERITE POWER. New York: The Macmillan Co., 1928. Pp. xiv + 238.

The old plan, of plays made from famous stories, carried into high-school English. Excellently done. B. R.

College Algebra. By BOLLING H. CRENSHAW and DUNCAN C. HARKIN. Philadelphia: P. Blakiston's Son & Co., 1929. Pp. xiii + 224. Price, $1.75.

An interesting text in college algebra. There are a large number of illustrative examples and a rather plentiful supply of exercises—some, however, rather poorly selected. The chapter on the "Theory of Numbers," which includes a brief discussion of Diophantine analysis, is a unique feature. It seems to the reviewer almost more than the college freshman could intelligently assimilate. Historical notes scattered throughout the book lend a great deal of interest to its construction. F. L. W.

Short Course in Spherical Trigonometry. By PAULINE SPERRY. Richmond: Johnson Publishing Co., 1928. Pp. xii + 60. Price, $1.

An elegantly written and prepared text on spherical trigonometry. It is written in the light of the fact that "there seems to be a real need for a short yet rigorous text in spherical trigonometry which shall contain little more theory than is needed for the solution of spherical triangles, with a few applications to add interest to the subject." Not the least interesting part of the book is its chapter on applications of spherical trigonometry to geography and astronomy, and its brief chapter on the history of trigonometry. F. L. W.

The Child-Centered School. By HAROLD RUGG and ANN SHUMAKER. Yonkers: World Book Co., 1928. Pp. xiv + 359.

This book has attracted considerable attention by reason both of the reputation of the first-named author and of widespread interest in changing concepts and practices in education. In spite of their manifest enthusiasm for what they call the "new" school, the authors have made a serious effort to appraise impartially some of the more recent developments in education. After four chapters largely historical in character, the reader comes to a description of the "new" school. The "articles of faith" of the "new" school, as set forth in chapter v, are six in number: Freedom as opposed to control, child initiative instead of teacher initiative, pupil activity in place of passivity, children's own interests as the basis of school organization and instruction, creative self-expression, and emphasis on the development of personality as well as adequate socialization. Typical school programs are presented, in chapter vi, to show the contrast between "new" and "old" schools. Four chapters of pointed criticism then follow, in which the shortcomings of the "new" school are frankly exhibited and discussed. Most of the rest of the book is devoted to the authors' conception of the fundamental importance of rhythm in life and of the basis here afforded for the educational process. The book is stimulating and will repay careful reading. It will provoke thought—some of the thought, it is true, opposed to the position taken by the authors—but still thought. If the book accomplishes this much, the authors, one feels sure, will feel repaid. Certainly they should be congratulated. W. A. B.

The Fundamental Skills of Algebra. By JOHN P. EVERETT. New York: Teachers College, Columbia University, 1928. Pp. 109.

This is an attempt to analyze the skills fundamental to a study of algebra. It gives the impression of being in no way objective, although the author states that "this thesis represents conclusions gained from an intensive and analytical study of written records of work done in algebra by several hundred pupils." The style is such that one gets the impression that the author is presenting an argument in support of the statement found on page 22: "We put too much teaching emphasis upon problems. . . . We could probably obtain the ability of problem solving better by actually solving fewer problems and discussing their implications more—by placing more emphasis upon the associative skills and less upon variety of experience." The author's theme seems to be that we should emphasize "associative skills" rather than "manipulative skills" in our teaching of algebra. There are some helpful and instructive points for the teacher of algebra. It seems to the reviewer that at times the author has gone into too much trivial detail to uphold the dignity of a "contribution to education." It has also many statements that can be questioned. F. L. W.

The National Council of Teachers of Mathematics. Fourth Yearbook. New York: Bureau of Publications, Teachers College, 1929. Pp. x + 186.

The purpose of this yearbook is to give the "significant changes and trends in the teaching of mathematics throughout the world since 1910." This has been accomplished by articles written by prominent educators in each of thirteen different countries, including the United States. These articles are very interesting, and should be helpful and instructive to any thoughtful reader. F. L. W.

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Capri-Erinnerungen. By PAUL HEYSE and AUGUST KOPISCH. New York: F. S. Crofts & Co., 1929. Pp. xviii + 163.

A very well-organized and executed edition of a literary gem that cannot fail to be enjoyed by American students. The introduction is a happy one in giving a clear feeling for the genial personality of Heyse. The linguistic exercises are good and plentiful. A. I. R.

The Southwest in Literature. Edited by MABEL MAJOR and REBECCA W. SMITH. New York: The Macmillan Co., 1929. Pp. xvii + 370.

An anthology of poetry and story on the Southwest. There is a wide variety, most of which one imagines would be interesting to young people. The selections are grouped under the headings of "Early Pioneers," "The Cowboy," "The Negro," "The Indian," "The Descendants of the French," "The German Pioneers," and "Sailors and Pirates." B. R.

Great English Plays. A Panorama of the English Drama from the Fourteenth to the Nineteenth Centuries in a Sequence of Twenty-six Complete Plays. Edited by H. F. RUBINSTEIN. New York: Harper & Brothers, 1928. Pp. 1152. Price, $2.50.

Possibly the most compact single anthology published. The type is, however, much too small for safe use in class. In spite of the title, not all the plays are great. It is difficult to think of any of the "fop" plays of the eighteenth century, for instance, as being "great." However, the volume is an unusual bargain. B. R.

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Plane Geometry. By JOSEPH A. NYBERG. New York: American Book Co., 1929. Pp. viii + 292. Price, $1.24.

An interesting text. Well constructed. It gives the impression of being teachable. The author has attempted "to present the subject with the proper emphasis on the topics that are interesting to the pupil of today" and "to help the pupil by such devices and explanations as recent researches in pedagogy have proved to be useful." It seems that he has fairly well succeeded in carrying out his purpose. F. L. W.

Two Essays of Lowell. By TUCKER BROOKE. New York: Henry Holt & Co., 1927. Pp. xxxi + 121.

One of those inexpensive and beautiful editions which should be on every shelf. The essays are "Democracy" and "On a Certain Condescension in Foreigners." B. R.

Teaching Health in Fargo. By MAUDE A. BROWN. New York: The Commonwealth Fund Division of Publications, 1929. Pp. xiv + 142. Price, $1.50.

The five chapters in this volume are entitled: "Health Education," "The Problem," "Direct Instruction," "The Facts of Health Behavior," "Correlation," "Linking Health With Other Subjects," "Contests in Related Devices," "Conclusion." It is copiously illustrated and gives a good account of the five-year demonstrations of health work under the direction of Miss Maude A. Brown. A teacher of health will be able to get many suggestions and much direct help from this small volume. It will also interest elementary teachers in general instructional work. It is valuable for every library emphasizing health teaching in schools. F. B. D.

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September 26—December 20

Sept. 26, Thursday—	Fall quarter opens. Registration. Entrance examinations.
Sept. 27, Friday—	Class work begins.
Oct. 1, Tuesday—	Last day for full registration for fall quarter. Last day for change of program for fall quarter.
Nov. 7, Thursday—	First term closes.
Nov. 8, Friday—	Second term begins.
Dec. 20, Friday—	Fall quarter closes. Examinations.

Jan. 1, 1930, Wednesday—Winter quarter begins.

Catalog from the Recorder